CONCEPTUALIZING A SUSTAINABLE SKI RESORT:

A CASE STUDY OF BLUE MOUNTAIN RESORT IN ONTARIO

by

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Author's declaration for electronic submission of a thesis

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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ABSTRACT

Sustainability has become a goal for many recreational tourism businesses. For ski resorts, the goal of sustainability has been driven by a growing understanding of the impacts ski resorts have on the biophysical environment and the host communities in which they reside. In addition, ski resort owners and operators have an inherent self-interest and ethical responsibility as corporate citizens to pursue sustainability. Has a sustainable ski resort, however, been adequately defined at a conceptual level?

The current understanding of sustainable ski resorts is limiting because it encourages ski resort owners and operators to address sustainability challenges in a compartmentalized fashion and in isolation of one another. This thesis examines how ski resorts would benefit from taking an integrated systems approach to sustainability—an approach that when applied, can be used to assess the state of sustainability at an organization and can broaden the scope of decision-making at an organization. This approach is missing in an industry where sustainability has historically meant focusing on achieving outcomes in efficiency thus failing to acknowledge the broader socio-ecological footprint of a ski resort.

Gibson *et al.* (2005) argue the journey toward sustainability ought to be guided by a set of requirements based on principles of sustainability. Such principles operate on an integrated systems approach. This thesis uses the Gibson principles as the criteria by which to assess literature that discusses desirable characteristics of businesses and recreation/tourism destinations in sustainability terms. The intention here is to incorporate context specific insights into the Gibson principles such that the Gibson principles are adapted for ski resorts. The sustainable ski resort principles emerge out of this adaptation process and are applied using an exploratory case study. Specifically, the principles are compared against the current conditions of sustainability at Blue Mountain Resort (BMR), located in the Town of Blue Mountains (Ontario), with the goal of assessing the state of sustainability at BMR.

The analysis resulted in the identification of five areas where the sustainable ski resort principles advanced the understanding of what constitutes a sustainable ski resort. First, the sustainable ski resort principles clearly require that there be limits on quantitative growth and, as such, ski resorts must strive towards decoupling improvements in quality and service from further growth and consumption. Second, a sustainable ski resort contributes to narrowing the socio-economic gaps within the workplace and the host community while operating within a multigenerational timescale to ensure future generations are fairly represented. Third, a sustainable ski resort reduces its net consumption of materials and resources and invests these savings in areas that are deficient in natural and social capital. Fourth, the sustainable ski resort principles require decision making power to be shared amongst internal and external stakeholders. Fifth, stakeholders must pursue opportunities to arrive at decisions

that strengthen the well-being of both human and ecological systems through the integrated application of the sustainable ski resort principles.

The analysis of the case study findings reveals that five of the eight sustainable ski resort principles are partially realized as represented by BMR's demonstrated leadership amongst ski resorts in Ontario in the areas of solid waste reduction, energy efficiency and staff/public education.

As evidenced in the case study, the ski resort industry's responses to its sustainability challenges have largely been handled in isolation using conventional approaches to decision-making that tend to address sustainability challenges as separate entities. This perpetuates the notion that sustainability challenges are detached and therefore detached solutions are proposed or pursued. These approaches fail to recognize the linkages and interdependencies between entities thereby failing to pursue integration—the essence of sustainability as articulated by the sustainable ski resort principles.

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BMR	Blue Mountain Resort
NSAA	National Ski Areas Association
OSRA	Ontario Snow Resorts Association
SACC	Ski Areas Citizens' Coalition
UNEP	United Nations Environment Program

CHAPTER 1: INTRODUCTION

The growth of tourism over the last century has been fuelled by increased leisure time and disposable income in western countries, as well as improved transportation systems that enable travellers to go greater distances quickly and cheaply. The rapidly growing size and commercialization of the tourism industry has given rise to increased critical review of its impact on the host communities and the biophysical environment (Mathieson and Wall, 1982; Craik, 1995; Bramwell *et al.*, 1996; Goeldner and Ritchie, 2003; Welford and Ytterhus, 2004). Ski resorts, a form of recreational tourism, have not escaped these concerns.

There has been growing opposition to ski resort development as a whole by critics such as Briggs (2000), Clifford (2002) and SACC (2001-2006). These critics have identified landscape destruction, water and air pollution, and damage to wildlife habitats as issues of concern related to ski resort development (i.e. commercial and real estate development). Questions about the sustainability of ski resorts have also been raised regarding ski resort operations in terms of waste generation and the consumption of water, energy and materials (Colorado Department of Public Health and Environment and Tetra Tech, 2002). Because their development and operational activities have the potential to pose large consequences for sustainability, ski resorts have faced increasing pressure from government agencies, non-governmental organizations and the public to incorporate sustainability strategies into their business practices (Gill, 1991; Todd and Williams, 1996; Williams and Gill, 1999; Hudson, 2000).

This thesis investigates the current understanding of what constitutes a sustainable ski resort and attempts to advance this debate by using an integrated systems approach to sustainability to study the interdependent social and physical realities (physical, environmental, social and economic) of ski resorts. The sustainability of ski resorts is studied through the development and application of sustainable ski resort principles that delineate the ideal outcomes needed for a sustainable ski resort.

The purpose of this chapter is to acquaint readers with the key terminology and background information regarding this investigation as well as present the arguments for why this investigation is important and what research questions the investigation will answer.

The chapter begins with defining what ski resorts and host communities are; followed by the scope of activities and stakeholders that are associated with these entities. The chapter proceeds with introducing the concept of sustainability, which leads into a brief preamble on viewing ski resorts from a systems perspective. Once familiarized with this background information, the reader is provided with the basis for why this investigation is worthwhile. The chapter concludes by introducing the thesis questions which leads into the theoretical and applied contributions this thesis attempts to make.

1.1 Background on Ski Resorts and Sustainability

The purpose of this section is to present the key terminology used by this thesis. The section begins with defining what ski resorts and host communities are—including an introduction to the scope of ski resort activities and range of stakeholders involved. Background information on the concept of sustainability will be provided, in addition to introducing the systems perspective as an alternative approach to investigating the essential aspects of a sustainable ski resort.

1.1.1 Defining Ski Resorts

According to Crompton and Richardson (1986), the term 'tourism' is used to describe an industry sector in the economy whereas the term 'recreation' is used to describe a social activity. Both the terms recreation/tourism are included together in describing a ski resort. Alpine skiing (including snowboarding) is a form of recreation enjoyed by skiers (including snowboarders) that takes place at ski resorts. Tourism is the practice of traveling for pleasure and often travel is involved in getting to a ski resort. Aside from the term 'tourism', ski resorts may also be considered part of the 'guest-service sector', or 'hospitality industry'.

The ski resort itself is usually located at the base of a mountain or substantial hill, for optimum snow coverage. On the mountain or hill are ski runs. Chair lifts are used for moving skiers to the top of the mountain or hill. In addition, ski resorts have core supporting amenities as discussed below.

According to the North American Industry Classification System (NAICS), ski resorts fall into one of two categories based on the type of amenities that are offered. According to the classification, NAICS 713920 Skiing Facilities, includes: "…establishments primary engaged in operating downhill and cross-country skiing areas, and equipment, such as ski lifts and tows. These establishments often provide food and beverage services, equipment rental services and ski instruction services." (Statistics Canada, 2005).

The second NAICS category that ski resorts can fall into is NAICS 721113 Resorts. Ski resorts that fall within this classification are those that operate ski facilities in combination with the provision of full-service accommodation and conference facilities (Statistics Canada, 2005). According to the classification NAICS 721113 Resorts, ski resorts that fall within this classification include: "…establishments primarily engaged in providing short-term lodging in facilities known as resorts." (Statistics Canada, 2005). Such facilities often comprise of extensive indoor and/or outdoor leisure activities and operate on a year-round basis (Statistics Canada, 2005).

Historically, evidence of skiing dates back at least 4500 years ago to Norway, where rock carvings depict a hunter on long runners and later in 1000AD skiing appeared in Viking literature

(Briggs, 2000). The first three decades of the twentieth century saw alpine skiing emerge as a recreational pastime in North America. Skiing in North America was originally imported by Scandinavian immigrants. North American interest in skiing surged after the 1932 Winter Olympics in Lake Placid, New York. In 1935, Sun Valley, in Idaho became the first 'destination' ski resort. Since that time, ski resorts have delivered outdoor recreation experiences to many, and have played a vital role in the local economic development of host communities. The closing decades of the twentieth century saw the character of ski resorts rapidly evolve from local or regional recreation facilities to urbanized destination resorts attracting people from beyond the local ski region. This transformation has had significant implications for the well-being of the biophysical environment and host communities.

1.1.2   Defining Host Communities

Broadly, host communities encompass people who live within the recreation/tourism destination. These residents compete with tourists for basic community resources such as space and facilities (Gill, 1997).   The host community of a ski resort includes government, households, employment, recreation and other human activities as well as the transportation flows necessary to connect these activities together.

Ski resorts like the tourism industry in general, are highly integrated into host communities and consequently dependent upon host communities for their survival (McKercher, 1993; Welford and Ytterhus, 2004). For instance, ski resorts depend on the host community to provide basic services such as police, fire protection, public transportation, housing and land use development approvals.

While ski resorts depend on host communities for their survival, it is important to recognize that as recreation/tourism destinations they also exert impacts (Mathieson and Wall, 1982; Craik, 1995; Bramwell *et al.,* 1996; Goeldner and Ritchie, 2003; Welford and Ytterhus, 2004) which can result in conflicts with host communities (McKercher, 1993; Goeldner and Ritchie, 2003). For instance, host communities that experience rapid growth as a result of tourism are presented with a unique set of issues and problems such as inequity and a lack of basic community facilities and services (Gill, 1991). On the other hand, recreation/tourism destinations also generate positive impacts for the host community such as employment opportunities, increases in government revenues and visitor interest in local culture that results in employment for artists and musicians (Goeldner and Ritchie, 2003).

1.1.3   Defining Stakeholders

According to Gill (1997), Swarbrooke (1999) and Perdue (2004), within any host community of a recreation and tourist destination there is likely to be a range of stakeholders with very different

interests and levels of attachment to the community. For ski resorts, stakeholders are those individuals or groups that are affected by, and affect, the ski resort's activities. Swarbrooke (1999) categorizes these stakeholders as follows: those who own a tourism enterprise; those employed in the local tourism industry; those entrepreneurs who are not involved in the tourism business but still affected by the industry; those who are not employed in the tourism industry and are generally unaffected by the industry; and those whose life is adversely affected by tourism. This form of categorization does not serve to include everyone, but rather is adequate to provide an understanding of the range of stakeholders.

1.1.4   Defining Sustainability

Sustainability as a concept is meant to represent a critique of current practices and trends and calls for significant shifts from business-as-usual for the long-term viability of ecology and human society (Stinchcombe and Gibson, 2001). The academic literature is filled with discussions about sustainability and has stimulated debate about what to sustain, for whom, for how long, at what cost and how. The earlier works that warned of problems of diminishing resources and increasing pollution were important steps that led to the recognition and early activity from which the concept of sustainability emerged. One of the most notable modeling exercises was the Club of Rome's *Limits to Growth* that forecasted eventual collapse should present economic growth trends continue. Other warnings arose starting with Rachel Carson's book *Silent Spring* in 1962 and industrial environmental disasters like Love Canal in 1976 (United States), Three Mile Island in 1979 (United States), Bhopal in 1984 (India) and Chernobyl in 1986 (USSR) which directly affected human health and well-being and elevated public awareness.

In 1987, the World Commission on Environment and Development released the report: *Our Common Future* – otherwise referred to as the Brundtland report. The Brundtland report attempted to chart the path forward via sustainable development—which meets the needs of the present generation without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Sustainability as a concept gained further worldwide attention when formalized through global forums such the 1992 Rio Summit. The Summit produced the Rio Declaration on Environment and Development (containing 27 principles) and Agenda 21—a general blueprint for environment and development into the 21st century.

Now, over 35 years since the release of *Silent Spring*, there is an extensive body of literature from which to determine what constitutes a sustainable organization and more specifically, from which to investigate what constitutes a sustainable ski resort.

1.1.5   Viewing Ski Resorts from a Systems Perspective

Viewing ski resorts from a systems perspective offers ski resort operators a holistic view of its sustainability impacts, a big-picture view that is missing from an industry where sustainability has historically meant concentrating efforts on immediate operational changes such as recycling and towel re-use programs (Schendler, 2003; George, 2004; Welford and Ytterhus, 2004).

From a systems perspective, the thesis investigates the essential requirements and outcomes for sustainable ski resorts in the context of whole systems, human and ecological subsystems, their state, changes in their state, and the linkages and interdependencies that exist between the systems.   Linkages and interdependencies between the systems can be investigated through the relationships that ski resorts have with their stakeholders, i.e.: suppliers, staff, guests and host communities. It is also important to acknowledge that ski resort activities operate within, and are influenced by, the larger social and biophysical systems in which the ski resort is embedded. Therefore, a systems perspective reveals the connections between a business such as a ski resort and all of the environments that influence it and that it influences (Nattrass and Altomare, 1999). This thesis investigates how the current understanding of sustainable ski resorts would benefit from taking a systems perspective by giving consideration to the integration of core concepts such as life cycle, diversity, supply chain relationships and human capital into the essential requirements and outcomes of a sustainable ski resort.

1.2   Thesis Rationale

This thesis' rationale is derived from four major premises: ski resorts are presently unsustainable; ski resort owners and operators have both an inherent self-interest and ethical responsibility as corporate citizens to pursue sustainability; and, a set of sustainable ski resort principles can be used to assist in providing guidance towards more sustainable outcomes at ski resorts.   The subsections to follow elaborate upon the four premises that support the thesis rationale.

1.2.1   Thesis Rationale: The Need for Sustainable Ski Resorts

As stated earlier, viewing ski resorts from a systems perspective offers a holistic, big-picture view of the potential sustainability impacts. A systems perspective requires the researcher to see the impacts of actions beyond the immediate sphere of interest to seeing the patterns of interaction and the underlying structures which are responsible for the patterns (O'Connor and McDermott, 1997).

Using a systems perspective as a lens, the researcher examined the literature that documents the potential of ski resort development and operational activities to pose large consequences for sustainability. Of the studies found through the literature review, most identified potential ski resort sustainability impacts in a broad and qualitative way, while some studies were found to quantify the impacts. Through the examination of these studies, three ski resort activities were identified as having the potential to cause adverse impacts on sustainability across societal and biophysical systems and as such are used as examples to substantiate the need for sustainable ski resorts.

First, due to the direct interaction that is needed between buyer and seller in the tourism sector (McKercher, 1993; Welford and Ytterhus, 2004), there is an intrinsic sustainability problem associated with the customer having to travel in order to consume the experience at the recreation/tourism destination (Welford, 2000). Findings from the United States Environmental Protection Agency (2000) reveal that how the guest gets to the destination and how far the guest has to travel may be as much of an environmental impact as the use the guest makes of the ski resort. These findings are further substantiated by Johnson (2003) who examined the ecological impacts of tourism in Ontario and found that transportation had the largest ecological impact amongst three other areas of ecological impact— accommodation, tourists' personal consumption and tourist activity. Not only does the travel incurred by guests have a significant environmental impact, it can be highly intrusive to host communities. For example, transporting a guest to a recreation/tourism destination affects the host community through the use of land, noise, traffic congestion, air pollution and consumes non-renewable resources (Mathieson and Wall, 1982; Craik, 1995; Goeldner and Ritchie, 2003; Lewis, 2005). Hence how the guest gets to the ski resort and how far the guest has to travel has the potential to pose large consequences for sustainability.

Second, ski resorts use tremendous amounts of water. In particular, the seasonality of high water usage during the start of a ski season due to snowmaking activities has the potential for adverse sustainability impacts. A study conducted by the United States Environmental Protection Agency (2000) quantified nationally the environmental impacts of ten types of tourism/recreation activities[1] within the tourism industry between 1997 and 2000 and found that despite possessing the fewest number of participants, skiing as an activity uses tremendous amounts of water compared to the other activities examined. In fact ski resorts use 5 474 gallons of water per participant per year, the next closest activity, golfing, uses 1 043 gallons per participant per year (United States Environmental Protection Agency, 2000). Both water quality and stream health are affected by withdrawals for

[1] The activities are skiing, fishing, hunting, boating, golfing, casino gambling, amusement/theme parks, historic places and museums, conventions and conferences and water side recreation. These activities were chosen because data were available and because they represent a significant portion of spending in the tourism/recreation sector in the United States.

snowmaking (Briggs, 2000) and consequently impact aquatic life (Wilde, 1998). Biologists are especially concerned about the large volumes of water used for snowmaking as the bulk of snowmaking takes place during the autumn months—the season of the lowest natural water flows (Glick, 2001).

Third, many ski resorts around the world are re-creating themselves into multi-season destinations with diverse activities (Hudson, 2002) and are often focusing on real estate development as a means to improve their financial performance (Rivera *et al.,* 2006). The trend towards multi-faceted ski resorts is creating greater potential consequences for sustainability (Gill, 1991; Todd and Williams, 1996; Williams and Gill, 1999; Hudson, 2000) and serves as the third example to substantiate the need for sustainable ski resorts. Such consequences include negative impacts on forests, soil, vegetation, water resources, fish and wildlife resources/habitat and scenic beauty (Todd, 1994; Wilde, 1998; Schendler, 2005). In addition, host communities potentially experience net negative impacts often related to a ski resort's rapid expansion (Lindberg *et al.,* 2001), raising questions of whether host community residents are really better off from the economic benefits generated by ski resort expansion (Clifford, 2002). For instance, Gill (1997), Clifford (2002) and Schendler (2005) have noted that the lack of affordable housing for residents leads to the displacement of workers to other communities, which undermines the sense of community and associated community functions. Further, Craik (1995) and Goeldner and Richie (2003) have categorized several possible impacts that tourism destinations have on host communities, including: increased cost of living, traditional residents being replaced by more affluent groups, traffic congestion, heavier use of public facilities and infrastructure, and growing tax burden of expanding infrastructure absorbed by local residents in order to cope with needs and demands of increased guests to tourism destination.

1.2.2   *Thesis Rationale: Inherent Self-interest in Sustainability*

As winter recreation/tourism destinations, ski resorts are influenced by the global issue of climate change. Due to its climatic dependence, the ski resort industry is one of the most visible and immediate industries impacted upon by the sustainability threat posed by climate change (Bicknell and McManus, 2006). Snow deficient winters have prompted investigation into the consequences for the ski resort industry in various countries including Switzerland (Bürki *et al*., 2003) and Canada (Scott *et al*., 2002, 2003, 2006; Scott and Jones, 2006).

Studies reveal that ski resorts face challenges under warmer climate scenarios (Scott *et al*., 2003, 2006) where the trends toward shorter ski seasons render a greater need for machine-made snow and investment in snowmaking infrastructure (Scott and Jones, 2006) and hence pose a significant business risk to ski resorts (Scott *et al*., 2006; Scott and Jones, 2006).

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Using the Australian ski resort industry as a case study, Bicknell and McManus (2006) have demonstrated that "the prospect of climate change as a threat can be more damaging than the impact of climate change itself." Here, the prospect of climate change has the potential to cast doubt upon the financial viability of the ski resort industry and possibly hinder investment as a result (Bicknell and McManus, 2006). In fact, Scott *et al*. (2006) point to the trend amongst the investment community in acknowledging climate change as a business risk and cautioned ski resorts against ignoring this apparent trend. Therefore, in order to maintain the perception of low credit risk, ski resorts must demonstrate that they have a viable future.

Given the value of their assets, it is in the ski resort industry's self-interest to respond to the sustainability challenge of climate change by negating the impacts of climate change through advocacy, mitigation and adaptation measures (Bicknell and McManus, 2006; Scott *et al*., 2006).

In response to the sustainability challenge of climate change, the ski resort industry can participate in advocating awareness and policy on climate change. In fact, the National Ski Areas Association (NSAA)'s Environmental Charter and Keep Winter Cool campaign are intended to raise awareness amongst the ski resort industry and skiers/snowboarders about how to reduce greenhouse gas emissions. Ski resorts should be encouraged to participate in these forms of advocacy (Scott *et al*., 2006). Bicknell and McManus (2006) have noted that ski resort industry participation in advocacy is unlikely to be embraced without a ski resort first implementing reductions in their own greenhouse gas emissions. Hence ski resorts need to participate in mitigation measures that achieve significant reductions in greenhouse gas emissions.

In order to demonstrate resilience rather than vulnerability to climate change, ski resorts must embrace adaptation measures (Bicknell and McManus, 2006; Scott *et al*., 2006). The practice of snowmaking is commonly viewed as an insurance policy for overcoming the unreliability of snow precipitation and serves as an adaptation measure to reduce the potential impacts of climate change (Bicknell and McManus, 2006; Scott *et al*., 2003, 2006). Bicknell and McManus (2006) have identified additional adaptation strategies including ski resorts offering non-snow related activities.

Scott *et al*. (2006) point out that while snowmaking is an effective climate adaptation strategy, there are impacts associated with it in terms of higher capital and operating costs and larger water requirements. In addition to the larger water requirements, the increasing demand for snowmaking contributes to the increasing demand for energy from sources that generate greenhouse gas emissions. This, in combination with a large amount of energy to run lifts, pump snowmaking water, operate buildings (i.e. lodging, restaurants, retail outlets), and fuel vehicles, position ski resorts as both vulnerable to and contributors to global climate change. In fact, the United States Environmental Protection Agency (2000) found that guest travel to the ski resort combined with the energy use needed

for ski lifts and snowmaking have led to the skiing industry being among the top three emitters of carbon dioxide equivalent[2] per participant in the tourism/leisure industry. Therefore, it is in a ski resort's best interest to participate in advocacy and mitigation measures in combination with adaptation measures.

1.2.3   Thesis Rationale: Ski Resorts Must Operate in a Sustainable Manner

Beyond the practical arguments for the need to promote sustainable ski resorts, there is an ethical argument for sustainability that suggests that ski resort owners and operators have an ethical responsibility to act as stewards for the biophysical environment and host communities they directly and indirectly affect. The assumption on which the ethical argument is predicated suggests that the existence of the natural world is inherently good and as such has intrinsic value (Robinson *et al.*, 1990). This argument extends beyond the fact that human beings depend on the biophysical environment for continued existence and survival. It implies that the distinct human trait of self-consciousness be used in the ethical treatment of the natural world. The ethical basis for sustainability encompasses all human activities and behaviours, from individual behaviours to collective decision-making (Robinson *et al.*, 1990).

The concept of corporate citizenship suggests how businesses such as ski resorts can exercise responsibility for both the environment and their host communities. Corporate citizenship as defined by Marsden and Andriof (1998): "… is about understanding and managing an organization's influences on and relationships with the rest of society in a way that minimizes the negative and maximizes the positive." Further, Marsden and Andriof (1998) indicate that: "Good citizenship is the product of both ethically driven social responsibility and pragmatic social responsiveness."

In opposition to corporate citizenship, critics such as economist Milton Friedman argue that the sole purpose of corporations is to maximize financial returns to their shareholders while meeting their statutory obligation to comply with existing legislation. Friedman and other critics, such as Henderson (author of *Misguided Virtue*), oppose the idea of corporate citizenship and see no value in extending a corporation's obligations beyond making money. Despite these critics there is growing evidence in the corporate responsibility literature that good corporate citizenship is the right thing to do (Nattrass and Altomare, 1999; Newton, 2005).

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[2] Greenhouse gas emissions are calculated for lodging, restaurants, retail, transportation and recreational activities. Emissions from these categories are primarily due to the combustion of fossil fuels and include emissions from electric power generation. The major greenhouse gases are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Emissions of these three gases are converted to a single measure through established factors, and are reported as CO_2 equivalents.

Examples from the sustainable ski resort literature support the argument that members of the ski resort industry as corporate citizens have an inherent ethical responsibility to act as stewards of the biophysical environment and as such pursue sustainability. For instance, within the NSAA's Environmental Charter, there are a total of eight references to the role of a ski resort as stewards or the practice of environmental stewardship, including the following statement: "A strong environmental ethic underlies our operations, makes us stewards of the natural surroundings, and is the basis for our commitment to constant improvement in environmental conditions" (NSAA, 2006b).

Both the practical and ethical arguments for sustainable ski resorts serve to answer why ski resorts are worthy of investigation. As such, it is now time to present the evidence that supports the need for, and usefulness of, sustainable ski resort principles.

1.2.4   Thesis Rationale: Importance of Sustainability Principles

This thesis attempts to challenge the current understanding of what constitutes a sustainable ski resort by suggesting an alternate approach according to established sustainability principles. Sustainability principles are important as they provide the vision about what must be achieved at the individual, community and global levels to reach an ideal state—the long-term viability of ecology and human society.

Doppelt (2003) studied the successes and failures of leading corporations striving for sustainability and identified the adoption of sustainability principles as an important step in the desired direction. This argument is supported by Gibson *et al.* (2005) who point out that a shift to more sustainability-focused decision-making requires the adoption of guiding principles as a prerequisite. Businesses can use sustainability principles as an assessment framework for decision-making as they can lend guidance on how an organization operates and on what it produces (Doppelt, 2003). Without a set of guiding sustainability principles, it is more likely that the business' decisions will lead to unsustainable outcomes.

Sustainability principles should effectively separate sustainable outcomes from unsustainable outcomes (Pope *et al.*, 2004) and when applied as decision criteria, sustainability principles serve as guidance towards more sustainable outcomes.   In their application, sustainability principles broaden the scope of conventional decision-making to reflect more sustainability-focused decision-making.

In order to make the application of sustainability principles as decision criteria effective, they must be made case specific. As revealed by Gibson *et al.* (2005), there is an acknowledgement amongst sustainability scholars that case specific additions and elaborations are needed to establish effective decision criteria.

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It should be recognized, however, that regardless of case specific additions and elaborations, sustainability principles lack the precision necessary to evaluate progress toward sustainability (Lawrence, 1997). Sustainability principles describe the essential outcomes and requirements of a certain state (i.e. sustainability), not the methods of meeting them (i.e. sustainability transition). The application of principles is not intended to measure the progress that has been made towards sustainability. For such a purpose, more specific objectives are required and need to involve the establishment and use of sustainability indicators which will serve to measure progress toward or away from sustainability (Lawrence, 1997). The application of sustainability principles serves to answer whether an organization is sustainable (i.e. Are we there yet?). Principles and indicators are part of a hierarchy of sustainability assessment tools, where principles serve to define sustainability and indicators serve to gage if we are heading in the right direction.

Todd and Williams (1996) argue that if the ski resort industry is to take a lead in sustainability, the first step must involve developing a set of sustainability principles. In response to Todd and Williams (1996), work has been undertaken solely within the conventional understanding of sustainability, thus overlooking the potential of integrated systems approaches to sustainability to formulate a view of what constitutes a sustainable ski resort. Consequently, efforts to guide more sustainable outcomes at ski resorts (NSAA, 2000, NSAA, 2006b; SACC, 2001) have been insufficient as they operate on conventional approaches to sustainability. Conventional approaches address sustainability challenges in a compartmentalized fashion subsequently perpetuating the understanding that the challenges are detached and, therefore, detached solutions are proposed or pursued. For instance, ski resort operators are implementing practices that are largely focused on internal operational changes that strive for more efficient use of materials, energy and water (Colorado Department of Health and Environment, 2002; NSAA, 2001-2006a; Schendler, 2005). Annette George (2004) interviewed representatives from conservation groups that have been critical of the sustainability activities of ski resorts. Craig Kenworthy, Private Lands Stewardship Director for the Greater Yellowstone Coalition indicated that in general, ski resorts are focusing on internal changes that lessen their impact on the environment (i.e. encouraging their guests to reuse their towels) and are often overlooking their impact on the natural processes within the surrounding biophysical environment (George, 2004).

1.3 Purpose of the Thesis

The purpose of this thesis is to advance the debate beyond the current understanding of what constitutes a sustainable ski resort. The thesis addresses the following questions:

1. What constitutes a sustainable ski resort?

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2. How does Blue Mountain Resort, as an exploratory case study, compare to the requirements of a sustainable ski resort?

For the purpose of this thesis, the development and application of sustainable ski resort principles helps to understand and study the sustainability of ski resorts. The sustainable ski resort principles represent the key requirements needed for ski resorts to progress toward sustainability and provide guidance towards more sustainable outcomes at ski resorts.

1.4 Relevance of the Thesis

This thesis aims to make significant applied and theoretical contributions. Presented below are the contributions to the literature where gaps presently exist. The gaps identified in the literature are used to justify the exploratory nature of this thesis.

Applied contributions

This work aims to make two significant applied contributions. First, it is used to advance the understanding of what constitutes a sustainable ski resort by developing sector-specific principles that operate on an integrated systems approach. Second, the application of such principles helps to understand the sustainability of ski resorts.

As highlighted in section 1.2.4, a gap exists in the current understanding about what constitutes a sustainable ski resort because conventional approaches to sustainability fail to address the complexities that exist between ski resorts and the biophysical and societal systems they are nested within. This thesis aims to close the existing gap in the current understanding of a sustainable ski resort by developing sector-specific principles that operate on an integrated systems approach. Through the lens of an integrated systems approach, the sustainable ski resort principles are built upon the eight sustainability principles proposed by Gibson *et al.* (2005) and are hereafter referred to as the Gibson principles. The Gibson principles were created as core requirements for sustainability, serving as prerequisites for more sustainability based decision-making with the intention that the principles be adapted for specific case use (Gibson *et al.*, 2005). Consequently, Gibson *et al.* (2005) have left it to scholars in different research areas to study how these principles can be applied to particular kinds of issues in which they are interested in and scholars have responded by adapting the principles to the context of the electricity sector (Rosenthal, 2004), among others. In fact, this thesis is exploratory in nature as it represents the first attempt to use Gibson principles as a basis for the development of principles specifically relevant to the ski resort sector. This contribution addresses a significant gap in conventional thinking.

The second significant applied contribution this thesis makes involves the use of a case study to investigate how a ski resort compares to the idealized model of a sustainable ski resort as articulated by the sustainable ski resort principles.   This work opens opportunities for practitioners and stakeholders to consider the requirements of the sustainable ski resort principles as guidance to move towards sustainability. More specifically, the findings from this work provide opportunities for the case study stakeholders to consider. The principles are also broadly applicable to a variety of businesses and even more so to those that provide products and services related to recreation/tourism activities.

Overall, the exploratory nature of the work is intended to advance the debate beyond the current understanding of what constitutes a sustainable ski resort. The sustainable ski resort principles developed in this research serves as a starting point from which to embark on further study to determine how the integration of sustainable ski resort principles might best be applied to both proposed and existing ski resort activities and within all levels of decision-making to help guide ski resorts on a path to sustainability.

Many stakeholders can be influenced by this work. First and foremost, ski resort owners and operators from the case study specifically, and other ski resorts in general, can benefit from this work. Ski resort industry associations across North America and around the world can also benefit from this work as they serve as key information providers on best practices for ski resort owners and operators. Other stakeholders influenced by the research include skiers and non-skiers, educators who provide ski resort operations training, environmental specialists from non-government organizations, government and industry as well as members of host communities in which ski resorts reside. It is hoped that this thesis will make a contribution towards sustainability-based decisions with better outcomes across a wider range of considerations.

Theoretical contribution

This work aims to make a significant theoretical contribution by using the integrated systems approach to sustainability to formulate an idealized model of what constitutes a sustainable organization. The integrated systems approach to sustainability avoids the inherent limitations of the conventional approach which tends to separate sustainability challenges into separate entities (Gibson, 2002; Gibson, *et al.* 2005; Gibson, 2006; Lehtonen, 2004; Pope *et al*., 2004). The Gibson principles emulate an integrated systems approach and were used in this thesis in a practical application as a way of developing principles that are sector specific. Similarly, this work follows Rosenthal (2004) who first attempted to use the Gibson principles as the basis for the development of assessment criteria specifically relevant to the electricity system. This thesis adapts the Gibson principles to the context of the case study using available literature that discusses sustainable business and recreation/tourism

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destinations. The adapted Gibson principles (i.e. sustainable ski resort principles) were made operational in this thesis by applying them as the idealized model of a sustainable ski resort. In applying the sustainable ski resort principles, this thesis adds value to the broader debate on the strengths and limitations of applying sustainability principles that operate on an integrated systems approach. In fact, this work represents the first known attempt in the literature whereby the adapted Gibson principles are applied using ideal type as the method for comparative study. It is hoped that this thesis will inform the ongoing debate regarding the use of integrative sustainability principles in relation to what constitutes a sustainable organization.

1.5   Structure of Thesis

Chapter 2 describes the conceptual framework and the research methods used to help answer the thesis questions: 'what constitutes a sustainable ski resort?' and 'how does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?' The conceptual framework outlines an integrated systems approach to sustainability used by the thesis to investigate the development and application of a set of sustainable ski resort principles. In chapter 3, the conceptual framework is used as a lens to view the problem of what constitutes a sustainable ski resort and to introduce ideas about sustainable ski resorts. The Gibson principles are used in chapter 3 as the basis for developing principles specifically relevant for the ski resort sector. The chapter develops the sustainable ski resort principles by adapting those principles to the context of a ski resort. This adaptation process involves using the Gibson principles as an analytical framework for reviewing and incorporating insights from relevant literatures that discuss desirable characteristics of businesses and recreation/tourism destinations in sustainability terms. Emerging from this adaptation process are the sustainable ski resort principles, which represent the key requirements needed for ski resorts to progress toward sustainability. Chapter 4 conducts an ideal type analysis between the sustainable ski resort principles developed in chapter 3 and the current state of the sustainable ski resort discussion. This analysis lends itself to making the determination on whether the current state of the sustainable ski resort discussion falls short of answering what constitutes a sustainable ski resort. The findings from chapter 4 add value to the sustainability debates as they uncover insights on the understanding of an integrated systems approach to sustainability, thereby extending the debates beyond the conventional understanding of what constitutes a sustainable ski resort. Chapter 5 uses an exploratory case study to investigate how a ski resort compares to the idealized model of a sustainable ski resort as articulated by the sustainable ski resort principles. Chapter 6 discusses the contributions and the conclusions of this thesis and presents a set of recommendations for future research and action.

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CHAPTER 2: RESEARCH DESIGN

As explained in chapter 1, the purpose of this thesis is to develop a set of sustainable ski resort principles that delineate the ideal outcomes needed for a sustainable ski resort and, as such, advance the debate beyond the current understanding of what constitutes a sustainable ski resort. As mentioned in the thesis rationale, organizations can use sustainability principles as a framework for decision-making—without them, it is more likely that the organizations' decisions will lead to unsustainable outcomes.

The research design is the methodological foundation upon which this investigation into the development and application of sustainable ski resort principles is built and comprises both a conceptual framework and research methods. The purpose of this chapter is to present the conceptual framework and the research methods that the thesis uses to help answer the thesis questions:

1) What constitutes a sustainable ski resort?
2) How does Blue Mountain Resort, as an exploratory case study, compare to the requirements of a sustainable ski resort?

The conceptual framework presents two opposing approaches to sustainability and makes the case for the integrated systems approach to be used by the thesis to study ski resorts and to advance the sustainability debates. The integrated systems approach to sustainability provides the framework within which the research findings are presented and interpreted.

This chapter discusses the literature sources used and why they were chosen to serve in the development of the sustainable ski resort principles. This chapter also discusses the body of literature that describes the current state of sustainable ski resort discussion. The qualitative and quantitative data used to inform the thesis are collected through the following methods of information gathering: secondary documentation, participant observation and interviews. This chapter describes each data collection and data verification method and presents justification for its use in this thesis.

Once collected, this chapter explains the data management and analysis methods used in this thesis for organizing, condensing and deriving meaning from the data. This thesis uses coding and data matrices as methods for data management and data analysis. Both methods serve to condense and organize data, allowing for findings to be identified and conclusions to be drawn. These methods facilitate the development of the sustainable ski resort principles.

Further data analysis is conducted using ideal type analysis. Ideal type analysis is used in two separate stages of this thesis. First, it is used to validate the contribution of the sustainable ski resort principles in advancing the understanding of what constitutes a sustainable ski resort. Second, it is used as the methodological approach of applying the principles in the case study.

Overall, the intention of chapter 2 is to explain and justify the methodological approach taken for developing and applying the sustainable ski resort principles. The following chapters in this thesis use the conceptual framework as a lens to view and advance the debate beyond the current understanding of what constitutes a sustainable ski resort. In addition, the thesis follows the research methods described in this chapter to collect data, formulate evidence and conduct analysis with the end goal of answering the thesis questions.

2.1 Conceptual Framework

The conceptual framework formally outlines an approach to sustainability that the thesis uses to study ski resorts. The conceptual framework is the foundation from which the thesis is designed as it describes the interrelated concepts and specifies what the thesis evaluates to investigate the development and application of sustainable ski resort principles.

Before selecting the conceptual framework, the subsequent sections compare two opposing approaches to sustainability—the pillar approach and the integrated systems approach. The relative merits of each approach are debated in the literature (Robinson, 2004). The comparison reveals the strengths and limitations of the approaches and justifies the selection of the integrated systems approach over the pillar approach to sustainability as the preferred conceptual framework for this thesis on the basis that a positive impact on sustainability will be achieved, which is the overall goal.

2.1.1 Pillar-based Approaches to Sustainability

Conventional approaches to sustainability are based on the assumption that economic, social and environmental considerations are independent entities with competing objectives. Here, decision-making for sustainability is focused on balancing competing objectives—commonly referred to as a pillar-based approach to sustainability. A prominent example of a pillar approach to sustainability is the 'triple bottom line' (TBL), as outlined by Elkington (1998). The TBL model is defined conceptually on three pillars: economic prosperity, environmental quality and social justice (Elkington, 1998). The "three pillar" or TBL model is widely used to conceptualize sustainability (Pope, 2006). This is likely attributed to the fact that the separate spheres of interest (i.e. biophysical, social and economic well-being) fit well with the established capacities of our institutions—both government (i.e. division of government mandates) and academic (i.e. division of disciplines) (Gibson, 2006).

Pillar-based sustainability has been subject to a number of criticisms (Lehtonen, 2004; Pope *et al.*, 2004; Gibson *et al.*, 2005; Gibson, 2006). First, the separation of the concept of sustainability into pillars has the tendency to emphasize competing objectives, promoting conflicts and trade-offs between

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the pillars (Pope *et al*., 2004; Gibson *et al.*, 2005; Gibson, 2006). With pillars, integration is inefficient as it is simply not possible to join pillars that are designed to achieve separate objectives. For instance, the objectives of improving material well-being and conserving natural ecosystems often conflict with each other. As a result, a pillar-based approach to sustainability struggle with how to settle the competing objectives of profitability, social justice and ecological equilibrium (Lehtonen, 2004; Gibson, 2006). The problem is further worsened by the lack of integrative expertise and data collection coupled with the division of government mandates into the separate spheres of interest (i.e. biophysical well-being and socio-economic well-being) (Gibson, 2006).

Second, the separation of the concept of sustainability into pillars perpetuates the notion that the pillars are detached, when in fact they are not (Lehtonen, 2004). As explained by Gibson *et al.* (2005), "…pillars have proved more useful for categorizing and separating then for linking and integrating." By portraying economic, social and environmental concerns as separate, the interrelations between these pillars are not adequately understood (Pope *et al*., 2004). Pillar approaches provide insufficient attention to overlaps and interdependencies and tend to facilitate analyses for each pillar. By separating sustainability challenges into pillars, conventional approaches to decision-making fail to account for the interconnections, ripple effects and multiple feedbacks that are found within systems (Gibson, 2006). In many instances these approaches to decision-making fail to recognize and take into account the full range of sustainability considerations.

Finally, a pillar-based approach to sustainability reinforces the status quo by legitimizing the existing goals of the society (Lehtonen, 2004). The pillars reflect conventional categories, whereas sustainability should be: "…an attack on conventional thinking and practice" (Gibson, 2002; Gibson *et al*., 2005) that strive to challenge well-established institutions and familiar patterns where these are unsupportive of sustainability (Dovers, 2002).

In summary, the pillar approach to sustainability is criticized for being divisive and reductionist (Lehtonen, 2004; Gibson *et al.*, 2005; Gibson, 2006; Pope, 2006).   A preferred approach to sustainability must be one that reconciles potential conflicts between social, economic and environmental considerations (George, 2001). What is needed is a holistic perspective to sustainability that extends beyond balancing values and strives to adequately address cross-pillar issues and interconnections (Lawrence, 1997). Gibson *et al*. (2005) argue that a more integrated conception of sustainability is needed—one that does not handle the pillars as "warring houses". Adoption of an integrated systems approach to sustainability can help avoid the above mentioned deficiencies in the pillar approach.

2.1.2   The Integrated Systems Approach to Sustainability

The integrated systems approach to sustainability is an alternative to pillar-based approaches to sustainability. The combined term, integrated systems, is derived from sustainability research undertaken by such scholars as Holling (1986; 1995); Robinson *et al.* (1990); Kay *et al*. (1999); Kay and Regier (2000); Gibson (2002); Gibson *et al.* (2005) and Gibson (2006).

The terms 'integrated' and 'systems' are distinct from one another in that integration is the way in which sustainability objectives are pursued, whereas systems is the way in which sustainability is studied. The integrated systems approach is used as a process to pursue sustainability by requiring that the interconnections within systems are actively considered, and solutions are sought that address multiple problems at the same time.

On its own, the term 'systems approach' extracts valuable lessons from the study of living systems (i.e. ecosystems) and tells us that all living systems share common properties of organization that arise from the interactions and interdependence of their parts (Holling, 1986; Holling, 1995; Kay *et al.*, 1999; Kay and Regier, 2000).

The systems approach requires that a problem be studied in a holistic fashion by looking at the system rather than just concentrating on individual parts. Concentrating on individual parts leads inevitably to a less resilient and more vulnerable system (Holling, 1995). It is the interactions of the parts that are more relevant to the understanding of the system than the parts themselves—as actions taken in one area of a system can influence and ripple in unforeseen ways throughout the larger system. As explained by Hodge, Hardi and Bell (1999): "... systems do not necessarily behave simply as the sum of their individual parts and the behaviour of the parts does not necessarily allow the behaviour of the whole to be predicted". The systems approach seeks to understand the patterns of change in both human and ecological systems, as both are inherently dynamic and unpredictable (Holling, 1995). Advocates argue that the systems approach captures more completely the complexity of human and ecological systems (Kay *et al*., 1999) than conventional approaches that concentrate on individual parts. A systems approach enables a greater ability to identify the indirect and synergistic effects which result from the linkages between the biophysical and human systems that might otherwise be overlooked through conventional approaches (Lee, 2002).

On its own, the term 'integrated approach' calls for the incorporation of a full range of sustainability considerations into mainstream decision-making.   As stated by Holling (1995), sustainability is: "…neither an ecological problem, a social problem, nor an economic problem. It is an integrated combination of all three." Rather than the focus of attention being on balancing competing objectives, as is often the case with a pillar-based approach to sustainability, opportunities for

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improving interrelated human and ecological interests are pursed through an integrated approach (Gibson, 2002; Gibson *et al*., 2005; Gibson, 2006). Hence the outcomes of decisions made using the integrated approach are evaluated in terms of their ability to address multiple sustainability challenges at the same time. In short, net gains towards sustainability will not be attained without the application of an integrated approach.

Combined, an integrated systems approach was used to study the problem of defining a sustainable ski resort and to advance the debate beyond the current understanding of what constitutes a sustainable ski resort.   The paragraphs below present the strengths and limitations associated with an integrated systems approach and elaborate on how such an approach can produce benefits for sustainability that would be unattainable with conventional approaches to decision-making.

Green building design is a successful application of the integrated systems approach. For instance, Mountain Equipment Co-op, a retail co-operative of outdoor equipment, adopted a more holistic approach to building its retail stores using an integrated design process to bring all the green building design expertise required to the table at the concept development stage. As a result of this more holistic approach, Mountain Equipment Co-op's Ottawa and Winnipeg stores were built with fewer natural resource demands and lower operating cost then earlier retail stores by understanding the whole system in which a building operates. The end result is a more sustainable outcome (Mountain Equipment Co-op, 2005).

Industrial ecology is another example of a successful application of the integrated systems approach. Industrial ecology exists where various industries work together to minimize their individual impacts on the biophysical environment by emphasizing an integrated, cyclical approach to production where wastes from one process are used as inputs elsewhere throughout the entire system as opposed to sourcing virgin material and having unused portions sent away as waste. Advocates argue that when applied, this approach achieves a combined sustainability benefit that is greater than any benefits achieved through the individual sustainability improvements made by each company in isolation (United States President's Council on Sustainable Development, 1996; Dunn and Steinemann, 1998; Canadian Eco-Industrial Network, 2005). Here factories are not viewed as independent production entities but rather as intertwined production entities, whose cyclical approach to production, leads to a positive impact on sustainability.

The oldest case of industrial ecology was initiated 30 years ago in Kalundborg, Denmark. Some of the material flows in the Kalundborg network include sludge and yeast from the pharmaceutical firm are supplied to farmers for fertilizer and pig food respectively, and fly ash and gypsum from the power station are supplied to the cement factory and the gyroc factory (Dunn and Steinemann, 1998).

As demonstrated in the above examples, an integrated systems approach can produce benefits for sustainability that would be unattainable with a pillar-based approach to sustainability. While the integration of a broad set of factors is desirable in decision-making for sustainability, its application poses challenges in many cases. In fact, the wide-spread adoption of integrative approaches faces many hurdles—including insufficient knowledge to confront complexity and uncertainty, traditional dominance of economic objectives and organizational fragmentation (Stinchcombe and Gibson, 2001). For instance, Gibson *et al.* (2005) identify the following as instances where uncertainties arise from complexity: how parts of socio-ecological systems behave; how parts of a system participate in the larger system processes; how the processes combine as dynamic and open systems at multiple intersecting scales; and, how all may be affected by the actions of humans. As Gibson *et al.* (2005) assert, human understanding is limited to suggestive evidence about many emerging sustainability problems and there exists even less understanding about how the effects of actions will ripple through socio-ecological systems.

Confronting the challenges of uncertainty and complexity weighs heavily upon the availability of accessible and appropriate information about current sustainability conditions that exist in human and ecological systems. It also requires the capacity to understand the intertwined importance of a set of multiple factors and to seek opportunities to contribute to all of them, rather than finding a balance between them that leads to sacrifices in sustainability. This is likely overly ambitious and impractical given the human tendency to separate complex issues such as sustainability into simpler components. For example, Gibson (2006) points to the lack of integrative expertise resultant from the detached academic training of experts in science and social science disciplines. In fact, not until recently has more effort been placed on the integration of environmental concerns into economic decision-making through disciplines such as ecological economics (Lehtonen, 2004). The understanding and integration between social and environmental realms is probably the least developed (Lehtonen, 2004). Similarly, human organizations as a whole operate in a highly compartmentalized manner with clearly defined system boundaries, whereas sustainability issues cross systems boundaries. This creates further challenges in adopting an integrative approach as a tension exists between organizational fragmentation and the sustainability requirements for greater coordination and cooperation within and across organizations.

Overcoming the challenges in adopting an integrated approach is by no means easy. A consistent and steadfast commitment to a long-term view is required along with a considerable amount of resources (i.e. time and money). With new knowledge would come a greater appreciation of the complex links, dependencies and relationship enabling a greater ability among organizations to fully

adopt an integrative approach. Despite the challenges associated with integration, as an approach, it holds significant promise in its intended outcome—to achieve a better impact on sustainability.

As demonstrated above, there are two opposing approaches used by scholars and practitioners to conceptualize sustainability—the pillar approach and the integrated systems approach. Once adopted, the preferred approach is used as the conceptual basis whereby sustainability is studied and pursued. On the basis of the comparison made above, the integrated systems approach is the preferred approach to viewing the problem of defining a sustainable ski resort and to advancing the debate beyond the current understanding of what constitutes a sustainable ski resort. As such, the sustainable ski resort principles are developed and applied through the lens of an integrated systems approach over chapters 3 to 5 of this thesis.

The next section introduces the role of sustainability principles in guiding decision-making for sustainability and justifies the selection of the Gibson principles, amongst the range of potential candidates, as the preferred set of sustainability principles from which to develop the sustainable ski resort principles.

2.1.3 Sustainability Principles

Sustainability principles describe the ultimate state of sustainability. Hacking and Guthrie (2006) parallel the sustainability principles to the "pot of gold at the end of the rainbow".

Taking the form of generalized statements of essential outcomes and actions, sustainability principles play a role in defining what constitutes a sustainable organization as they provide a vision on what must be achieved at regional and global levels across a breadth of human activities. Sustainability principles can be used to assess whether an organization is sustainable and when adopted, can help to guide decision-making. In particular, sustainability principles are successful at broadening the scope of decision-making and getting organizations to focus on more than just economic considerations (Pope *et al.*, 2004; Rosenthal, 2004; Donnelly and Boyle, 2006).

In an effort to advance understanding and guide decision-making on sustainability, many scholars and practitioners have developed different sets of sustainability principles (Murcott, 1997) and there are continual efforts to adapt these principles for a wide range of purposes and contexts (Hackling and Guthrie, 2006). These principles range from most integrated to least integrated (Morrison-Saunders and Therivel, 2006).

The vast diversity of principles indicates that there are divergent opinions as to what should constitute sustainability and according to Becker *et al*. (1999): "The only consensus on sustainability appears to be that there is no shared understanding." As articulated by Robinson *et al.* (1990),

sustainability scholars can say more about what is not sustainable than they can say about what is sustainable. The only point of agreement within this literature is that the present path is not sustainable.

Given the lack of consensus, this thesis will start by selecting a set of sustainability principles based on the assertion made in section 2.1.2— that the integrated systems approach is the preferred approach to conceptualizing sustainability. Hence the process behind the development of the sustainable ski resort principles starts with the selection of principles that align with the integrated systems approach. Here the goal is to use these principles as a starting point for developing a set of integrated principles that capture the linkages and interdependencies that exist between a ski resort and the biophysical and societal systems that they are nested within.

As noted by Murcott (1997) there are many sets of sustainability principles and several are potential candidates that align with the integrated systems approach. Although by no means the final word on what constitutes sustainability, the Bellagio principles, The Natural Step principles and the Gibson principles were given consideration.

Developed in 1996 by an international group of measurement experts, the Bellagio principles consist of 10 principles that are intended to act as guidelines for the assessment of progress towards sustainability (Hardi and Zdan, 1997). The focus of the Bellagio principles is discipline specific in that the principles provide guidance on the process needed to reach the outcome of sustainability. Despite their valued contribution to the sustainability literature, the Bellagio principles do not explicitly provide a vision of sustainability—a core need of this thesis.

Conceptualized in 1990, The Natural Step (TNS) principles are described as four first-order "systems conditions" that were arrived at based upon the scientific foundations of the laws of thermodynamics and studies of humans as social species (Upham, 2000). TNS principles are designed to represent the conditions of an end-state and can be approached through a process of back-casting as noted by Johnston *et al.* (2007). According to Johnston *et al.* (2007), this process of envisioning future compliance encourages a response to the rhetorical question of "How do we get there?". Despite the value of this process, TNS principles fall to the criticism that they are ambiguous, making their usefulness at the operational-level questionable (Upham, 2000). Consequently, TNS principles fall short of providing a set of sustainability principles that can be adapted to the context of a ski resort.

The Gibson principles were initially presented in Gibson (2002) in a study for the Canadian Environmental Assessment Agency and were further refined in Gibson *et al.* (2005). The Gibson principles were developed as a set of core "sustainability requirements" based on "a synthesis of arguments drawn from sustainability literature and practical experience" and the principles have "universal application in the assessment of many kinds of undertakings" (Gibson *et al.*, 2005). Gibson (2002) acknowledges that the principles are only part of the solution as they provide vision on what

must be achieved, but do not provide the methods of meeting them (i.e. sustainability transition). How sustainability is pursued (i.e. procedures for operationalization) is equally important; however, it is beyond the scope of this thesis.

When compared to the Bellagio principles and TNS principles, the Gibson principles lack extensive use and examination. Despite being relatively new and untested, the Gibson principles were selected over the Bellagio and TNS principles because they exhibit two core strengths. First, the Gibson principles were drawn from a broad and extensive body of literature by integrating considerations from various fields, including: ecological systems theory, corporate greening, social justice, ecological economics, community and growth management planning. Second, the Gibson principles advocate that decision-making for sustainability make a positive contribution to the well-being of biophysical and humans systems, rather than traditional decision making for sustainability that advocates minimizing negative impacts. Combined, these two core strengths substantiate the selection of the Gibson principles over rival principles.

The limitation of this selection approach is that it accepts the assertion that the Gibson principles constitute an accurate and valid description of what sustainability entails. Although by no means the final word on what constitutes sustainability, the Gibson principles align with an integrated systems approach to sustainability which allows for advancing the debate beyond the current understanding of what constitutes a sustainable ski resort—the main purpose of this thesis. Further elaboration on the strengths and weaknesses of the Gibson principles will be provided in the subsequent section.

2.1.4   *Gibson Principles*

The Gibson principles provide a broad and holistic interpretation of sustainability that extends beyond the conventional categories (i.e. environmental, economic and social) as they represent a set of interdependent requirements each expressing desirable and viable sustainability characteristics. The purpose of this section is to introduce the Gibson principles in greater detail as the chosen set of principles to adapt to the context of a ski resort. Part of this introduction will include a systematic review of scholars that have reviewed and reflected upon the Gibson principles and integrative principles in general.

The Gibson principles have a generic quality that can serve as a starting point from which to explore what constitutes a sustainable ski resort. As demonstrated below, some of the Gibson principles do not pertain directly to the thesis topic but all are relevant as they broadly talk about the path towards sustainability and the requirements for change. The Gibson principles are distinctive in that they recognize the integrative aspects of sustainability and are listed as follows:

- Socio-ecological system integrity: Build human-ecological relations that establish and maintain the long-term integrity of socio-biophysical systems and protect irreplaceable life support functions upon which human as well as ecological well-being depends.

- Livelihood sufficiency and opportunity: Ensure that everyone and every community has enough for a decent life and opportunities to seek improvements in ways that do not compromise future generations' possibilities for sufficiency and opportunity.

- Intragenerational equity: Ensure that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc.) between the rich and the poor.

- Intergenerational equity: Favour present options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably.

- Resource maintenance and efficiency: Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socio-ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit.

- Socio-ecological civility and democratic governance: Build the capacity, motivation and habitual inclination of individuals, communities and other collective decision making bodies to apply sustainability principles through more open and better informed deliberations, greater attention to fostering reciprocal awareness and collective responsibility, and more integrated use of administrative, market, customary, collective and personal decision making practices.

- Precaution and adaptation: Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise and manage for adaptation.

- Immediate and long-term integration: Attempt to meet all requirements for sustainability together as a set of interdependent parts, seeking mutually supportive benefits.

A social science citation search was conducted using academic literature databases such as *Web of Science* and *Google Scholar* to identify those scholars who have reviewed and reflected upon the Gibson principles. Rosenthal (2004); Donnelly and Boyle (2006); Morrison-Saunders (2006); and, Morrison-Saunders and Therivel (2006) have directly responded on the usefulness of the Gibson principles, while Pope *et al.* (2004) and, Pope (2006) have indirectly responded to the Gibson principles in the context of examining the usefulness of sustainability principles for decision making in general. The paragraphs below summarize the responses from these scholars.

The Gibson principles are viewed as making an original and powerful contribution to the field of decision making for sustainability (Morrison-Saunders, 2006). The strengths of the Gibson principles are summarized as follows:

- The Gibson principles specifically "propose new ways of thinking about sustainability" (Morrison-Saunders and Therivel, 2006) by calling upon scholars "to think more deeply about the concept of sustainability and how it might be incorporated into decision making" (Pope, 2006).

- In studying the integration of sustainability considerations, Morrison-Saunders and Therivel (2006) identified the Gibson principles as an example of the most integrated type of decision making criteria and when applied, such principles have the strongest potential for fully integrated and more sustainable decision-making and outcomes.

- The Gibson principles successfully advocate that the aim of decision making for sustainability should shift from minimizing the negative impacts on the biophysical environment to making "a positive overall contribution to ecological and community sustainability at local and regional levels." (Morrison-Saunders, 2006).

The limitations of the Gibson principles and how this thesis intends to best address or accept these limitations are summarized as follows:

- The Gibson principles do not measure sustainability, i.e.: the 'distance from the target' (Donnelly and Boyle, 2006). It is not the intention of this thesis to use the Gibson principles as indicators to measure sustainability progress, but rather they will be used as the foundation from which to describe a vision of a sustainable ski resort.

- Gibson *et al.* (2005) acknowledge that the principles are wide-ranging in scope and lack detail on their requirements for specific case use. Their useful application depends upon the understanding of context-specific activities under consideration and the human and biophysical systems to be affected. As such, context specific additions and elaborations are needed to establish the Gibson principles as effective decision criteria for particular places and applications. Further, methods to make the Gibson principles operational have not been articulated (Rosenthal, 2004). Section 3.2 addresses this need by adapting the Gibson principles through the use of theoretical literature on sustainable business and tourism that has specific relevance to ski resorts.

- The Gibson principles operate on complex systems theory and on the principle of integration, resulting in challenges in their practical application (Rosenthal, 2004; Morrison-Saunders and Therivel, 2006).

- Gibson *et al.* (2005) acknowledges that the principles may be difficult to achieve given they operate on the basis of complex systems theory. Limited understanding of how these complex systems work, resource constraints, and limited institutional capacity impede a complete interpretation of the principles. This thesis will attempt to address these limitations, but gaps in knowledge and areas for improvement will remain.
- Similarly, the principle of integration is desirable in theory but in application it is likely overly ambitious and impractical given the tendency to separate sustainability into simpler components (Gibson *et al.*, 2005). Thus, this thesis acknowledges that the integration of a broad set of factors is desirable and a sustained effort in this area accompanied by guidance in circumstances where sacrifices and concessions need to be made.

Despite these limitations, the Gibson principles can produce benefits for sustainability that would be unattainable with conventional approaches to sustainability. The adoption of the integrated systems approach to decision-making is more appropriate as it avoids the inherent limitations of the pillar approach as discussed in section 2.1.1. Gibson (2006) acknowledges that integration is not common and is "at best unfamiliar to and uncomfortable for many" decision makers and other participants. As such, the pursuit of integration is in its infancy stages and the journey from thinking to practice is perhaps best characterized as a continual learning process requiring an enduring supply of perseverance and commitment (Gibson, 2006). Morrison-Saunders (2006) encourages sustainability practitioners to apply the Gibson principles within their own jurisdictions and share their experiences with others on implementing the principles such that the practice of sustainability decision making grows.

As a package, the sustainability principles presented above provide an introduction to what a sustainable ski resort should ideally achieve, integrating economic, social and environmental concerns. Although by no means the final word on what constitutes sustainability, the Gibson principles provide a clear understanding of the broad requirements for sustainability that allows for the development and application of sustainable ski resort principles, which is the main purpose of this thesis. In order to serve as effective decision criteria for a sustainable ski resort, the Gibson principles must be elaborated upon using context specific additions that are relevant to ski resorts.

The sections to follow outline what theoretical literature sources are used for adapting the Gibson principles to the context of ski resorts and why they are useful to this thesis.

2.1.5   Corporate Sustainability

The corporate sustainability literature was identified by the researcher as one of two theoretical literature sources that would serve to adapt the Gibson principles to the context of a ski resort. This body of literature is valuable as it discusses desirable characteristics of businesses in sustainability terms.

As with other businesses, ski resorts operate and maintain their facilities to service the needs of their customers—skiers and other guests. This involves the operation of facilities for alpine skiing including ski-lifts, ski schools and ski rentals as well as associated lodging, restaurants, rental apartments/chalets and clothing outlets. In order to operate these functions, the ski resort consumes materials, energy and water directly from the biophysical environment and indirectly from the biophysical environment through their suppliers and generates wastes as a result.

Corporate sustainability literature has its roots in the industrial sector. It emerged in response to industrial environmental disasters like Love Canal in 1976 (United States), Three Mile Island in 1979 (United States), Bhopal in 1984 (India) and Chernobyl in 1986 (USSR) which directly affected human health and well-being and elevated public awareness.   Broadly, the sustainability of a business is determined by the way it operates as an organization through its governance structure and what it produces—whether it is a product and/or service. An important part of what the corporate sustainability literature seeks to do is to understand the direction businesses need to take to better align their products and services with stakeholder expectations thereby creating economic, environmental and social value.

In business circles, the 'triple bottom line' (TBL), as coined by Elkington (1998), is found throughout the corporate sustainability literature where sustainability is defined as the maintenance or increase in the total stock of capital (i.e. financial, natural and social). The TBL model reflects the pillar approach to sustainability where the holistic concept of sustainability is divided into three pillars and runs the risk of the sum of the parts being less than the whole as the interrelations between the three pillars are not adequately understood or described (Pope *et al*., 2004). Further, the separation of the concept of sustainability into the three pillars of TBL tends to emphasize potentially competing interests rather than the linkages and interdependencies, thereby making the task of integration extremely difficult (Gibson *et al.*, 2005; Gibson, 2002). Consequently, an effort was made by this thesis to seek out those contributions from the corporate sustainability literature that devote attention to an integrated approach.

This literature comprises of a vast array of resources across many categories. This thesis draws upon the following categories: eco-efficiency, design for environment, life cycle assessment, and corporate social responsibility. These categories of the corporate sustainability literature can be found

in the following academic journals: *Business Strategy and the Environment, Corporate Environmental Strategy, Harvard Business Review, Journal of Cleaner Production, Journal of Corporate Citizenship, Journal of Environmental Planning and Management,* and *Journal of Industrial Ecology.*

As described below, the sustainable tourism field is another source of theoretical literature that lends the valued insights needed to adapt the Gibson principles to the ski resort context as it discusses characteristics of recreation/tourism destinations in sustainability terms.

2.1.6   Sustainable Recreation/Tourism Destinations

What differentiates ski resorts as recreation/tourism destinations from many other sectors of the business community is the fact that ski resorts do not produce a tangible product, but rather deliver services that result in an experience. For a ski resort, quality service plays a key role in delivering a valued experience. The interactions that take place between human and ecological systems are different in a recreation/tourism setting versus an industrial setting. Much of this is attributable to the fact that the customer must travel to the destination in order to consume the experience, rather than the product or service being delivered to the consumer. The movement of customers can be highly intrusive to host communities and the biophysical environment as the impacts are often felt not by the visitor, but by the host community. For example, transporting a visitor to a recreation/tourism destination affects the host community through the use of land, noise, air pollution and consumes non-renewable resources. As a result, the corporate sustainability literature is not suited to addressing the set of unique interactions associated with a recreation/tourism destination delivering an experience.   Hence ideas within the sustainable tourism literature can lend valued insights specific to these interactions thereby further serving to adapt the Gibson principles to the ski resort context.

The early origins of the sustainable tourism literature can be traced back to a number of influential works. Published in 1973, the book entitled: *Tourism: Blessing or Blight?* drew attention to the negative potential impacts of tourism. Mathieson and Wall (1982)'s *Tourism: Economic, Physical and Social Impacts* demonstrated the global impacts of tourism. Murphy (1985)'s *Tourism: a Community Approach* discussed for the first time the relationship between tourism and the host community. These works documented the impacts of tourism and consequently set the stage for the emergence of the concept of sustainable tourism as a response to the increased critical review of the commercialization of the tourism industry and its impacts on host communities and the biophysical environment.

During the 1990s, the concept of sustainable tourism has become recognized as encompassing an approach to tourism which validates the need for those involved in tourism to strive towards

sustainability. Prompted by tourism academics who began to consider the implications of the Brundtland Report, the concept of sustainable tourism emerged and became widely used by the early 1990s (Swarbrooke, 1999). In 1997, Clarke charted the path and use of sustainable tourism as an idea. Sustainable tourism was initially conceived as a polar opposite idea to mass tourism (Clarke, 1997). With further discussion and debate, the idea of sustainable tourism underwent a transition where it was acknowledged that there were different forms of sustainable and mass tourism and that positive action could make the different forms of tourism more sustainable (Clarke, 1997).

Sustainable tourism recognizes the attractiveness of recreation/tourism destinations and the economic dependence outdoor recreation and tourism has on the conservation and appropriate management of natural and cultural resources. According to Butler (1993), sustainability in the context of tourism is "…tourism which is developed and maintained in an area (community, environment) in such a manner and at such a scale that it remains viable over an indefinite period and does not degrade or alter the environment (human, physical) in which it exists to such a degree that it prohibits the successful development and well being of other activities and processes."

Sustainable tourism literature seeks to align the needs of tourism destinations, their host communities and the biophysical environment in a sustainable fashion. This body of literature lends insights for ski resorts, particularly with respect to how the industry and other stakeholders can facilitate and manage a more sustainable role for tourism in local economic development. This implies the need to address the issue of carrying capacity[3] by determining acceptable and unacceptable limits; to minimize the detrimental aspects of tourism, while maximizing its benefits in relation to cultural, economic, social and political resources.

The size of the sustainable tourism literature spans across many academic fields including: tourism planning as a form of land-use planning, marketing, outdoor recreation and leisure and local economic development. The literature is categorized by type of activity: general tourism, tourism in mountain areas, winter sports destinations, tourism operations and development. These categories of sustainable tourism literature can be found in the following academic journals: *Annals of Tourism Research, Journal of Tourism Studies, Journal of Sustainable Tourism, Tourism Management, Managing Leisure, Progress in Tourism and Hospitality Research, Tourism,* and *Recreation Research and Sustainable Tourism Management.*

As described so far, the integrated systems approach is the preferred approach to advancing the debates beyond the current understanding of what constitutes a sustainable ski resort and as such serves as the conceptual framework for this thesis. The Gibson principles were identified as aligning with the

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[3] In the context of a recreation/tourism destination, Swarbrooke (1999) identifies several types of carrying capacity: physical, environmental, economic, social, perceptual and infrastructure.

integrated systems approach and were selected as the preferred set of principles over rival sets of principles. Further, as described in the subsections above, this thesis draws ideas about sustainable ski resorts from the useful theoretical literature sources for the purpose of adapting the Gibson principles for use in the ski resort context. The remaining subsection introduces the final body of literature used by this thesis. This literature is not used to adapt the Gibson principles, rather it represents the baseline from which to assess whether the adapted Gibson principles advance the debate on what constitutes a sustainable ski resort.

2.1.7   *Current State of the Sustainable Ski Resort Discussion*

An additional body of literature used by the thesis represents the current understanding of what constitutes a sustainable ski resort and primarily draws from the North American experience, and where available, from Europe. This body of literature represents the baseline from which to compare and contrast with the adapted Gibson principles —the intention here to demonstrate whether the adapted Gibson principles advance the debate on what constitutes a sustainable ski resort.

This literature describes the current state of sustainable ski resort discussion and consists of viewpoints and literature sources from academia, non-government organizations, governments and members of the ski resort industry all serving to guide more sustainable outcomes at ski resorts. It is important to examine the viewpoints and literature from various stakeholders. In collecting varied views and realities from stakeholders, the aim is to strive towards an understanding of the whole (Stake, 2005). Much of the current state of sustainable ski resort discussion is drawn from applied literature sources (i.e. secondary documents) as well as other data sources (i.e. interviews, participant observation) with the remainder from academic literature sources. The data collected from these sources are meant to provide a window into the current state of the sustainable ski resort discussion.

The applied literature sources chosen for this thesis were found in various documents including trade publications (i.e. *National Ski Areas Association Journal*, *Ski Area Management,* etc.); documentation from individual ski resorts and industry associations (i.e. Aspen's *Sustainability Report*, Ontario Snow Resorts Association (OSRA)'s *Environmental Best Practices Guide*, NSAA's *Sustainable Slopes Annual Report*, etc.); books on the impacts of the ski resort industry; and, assessment tools created by industry and NGOs for ski resorts on the issues of sustainability (i.e. NSAA's *Environmental Charter* and Ski Area Citizen Coalition's *Environmental Scorecard*).

As mentioned, the remainder of the sustainable ski resort discussion were found in academic journals such as: *Journal of Sustainable Tourism, Corporate Environmental Strategy, Hotel and Motel Management, Managing Leisure,* and *Tourism Management.*

The intention of the sections that follow is to introduce and justify the methodological approach to developing and applying the sustainable ski resort principles. Described and rationalized are the methods of information gathering and data analysis used to answer the thesis questions: What constitutes a sustainable ski resort? and How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?

2.2   Overview of Methodology

This thesis can most effectively be characterized as following a qualitative style of investigation that is both exploratory and descriptive. Exploratory aspects of this thesis are aimed at gathering as many insights as possible while the descriptive aspects of this thesis portray how things are and the variables that influence them (Neuman, 2003). This thesis collected both qualitative and quantitative evidence and analyzed the evidence in primarily qualitative ways.

There are three main reasons why a qualitative approach is taken to achieve the purpose of this thesis. First the nature of the research questions posed in this thesis (i.e. what and how) lead to describing what is going on rather than research questions that are focused on the 'why' which are looking for relationship between variables to establish a cause and effect (Creswell, 1998).

Second, the topic of developing sustainable ski resort principles based on an integrated systems approach treads on territory that has yet to be explored and therefore a qualitative approach yields a detailed view of the topic. In terms of the research path, this thesis is an applied extension of the work undertaken by Gibson (2002) and Gibson *et al.* (2005) that ensued in the creation of the Gibson principles. As Gibson *et al.* (2005) explains, these principles were created as core requirements for sustainability, making them flexible for application in various decision-making areas with the stipulation that they be adapted for particular places and applications. Rosenthal (2004) is another influential work on this research path representing the first attempt to use the Gibson principles in a practical application as a way of developing principles that are sector specific. Here, Rosenthal undertook an applied extension of the work by Gibson (2002) and used the Gibson principles as the foundation for developing sustainability criteria specific to the electricity sector in China. Building upon the works of Gibson (2002), Rosenthal (2004) and Gibson *et al.* (2005), this thesis represents the first attempt to use the Gibson principles—core requirements for sustainability—as a basis for the development of principles specifically relevant to the ski resort sector.

Third, the nature of the research questions requires that the thesis study ski resort activities in their natural setting. Here the development of contextual understanding is required and this involves going out into the field to conduct a portion of the data collection (Van Maanen, 1983; Creswell, 1998). According to Creswell (1998), qualitative research allows the researcher to report on her own

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perceptions, experiences and insights that have been acquired from being in the field. Sherman and Webb (1988) analyzed what leading qualitative researchers had to say about their work and concluded that qualitative research has the aim of understanding participants' experiences as a whole, as opposed to separate variables.   The notion of building a complex and holistic picture defines the end goal of qualitative research and allows the researcher to report on her own perceptions, experiences and insights that have been acquired from being in the field (Creswell, 1998).

2.3   Case Study Method

According to Yin (2004) and Stake (2005), the case study method can be qualitative, quantitative or a combination of both and involves the use of multiple sources of information (Stake, 1988; Creswell, 1998; Yin, 2004). A case study is an exploration of a bounded system by which the main objective is to understand what is happening inside that bounded system. The core strength of the case study method is the depth of investigation involved with collecting individual narratives from case study participants. As outlined by Stake (2005), case work involves spending an involved period of time onsite, where the researcher is personally in contact with the activities and operations of the case, and the researcher is involved in reflecting and revising descriptions and meanings of what is going on.

Using a case study method for this research helps to foster understanding of the sustainability of ski resorts in light of a set of sustainability requirements that are based on an integrated systems approach. The case study method is used to investigate how a ski resort compares to the idealized model of a sustainable ski resort by applying the sustainable ski resort principles developed in the thesis. As explained in chapter 1, the sustainable ski resort principles represent the key sustainability outcomes and requirements needed for ski resorts to progress towards sustainability.

The case study uses a type of qualitative data analysis referred to in Neuman (2003) as Max Weber's method of ideal type. Here the sustainable ski resort principles are best characterized as an 'ideal type' and when applied, serve as pure standards against which ski resorts can be compared. The sustainable ski resort principles help to understand the sustainability of ski resorts, despite the fact that no real-life organization perfectly matches with the ideal type (Neuman, 2003). The analysis identifies if and how the requirements of the sustainable ski resort principles are present in the case study, and where they are not. The ideal type analysis uncovers insights on the understanding of an integrated systems based approach to sustainability with the intention of extending the debates beyond the conventional understanding of what constitutes a sustainable ski resort.

Overall, the method of ideal type used in the case study allows for reflection upon the broader questions concerning the sustainability of ski resorts, what fundamental changes must take place for ski

resorts to move towards sustainability, and the lessons learned on applying sustainability principles that operate on an integrated systems approach.

2.4   Case Selection

Case studies can involve either single or multiple cases (Yin, 2003). Although individual cases are singular, they have subsections (i.e. organization is composed of different departments) and each of these may have their own contexts. Hence an individual case can consist of several embedded cases as referred to by Yin (2003) and Stake (2005). Cases need to be chosen. Prior to making a decision on case selection, the following criteria presented by Stake (2005) are reviewed: representativeness; opportunity to learn; and, accessibility.

A common challenge that arises with the case study as a method of research is the question of how the findings based on one case are representative of other cases (Stake, 2005). There exists a debate within the case study literature between particularization and generalization and the debate has direct implication on the issue of representativeness.

Yin (2003) stresses the importance of generalization as evidenced through advice on case selection where Yin recommends that the larger the number of cases you can study, the better in terms of developing assertions or generalizations about the case. Stake (2005), on the other hand, argues that the focus should be on the case, not the whole population of cases. Further, Stake (2005) asserts that the purpose of the case study is not to represent the world, but to represent the case. Here Stake (2005) argues that if the primary focus of the case study researcher's attention is on seeking generalizations in a case, then it is more likely that features important for understanding the case itself will be overlooked.

In this thesis, efforts are made to develop assertions or generalizations about the case, however given the context-specific findings from this case study approach, many of the findings might not be generalized to all ski resorts. Since the topic of developing and applying the sustainable ski resort principles treads on territory that has yet to be fully explored, more priority needs to be placed on developing an understanding versus seeking generalizations. That said, the methodological approach of applying the principles may be transferable to other ski resorts across North America and around the world.

Building on the argument that by focusing on a single case renders more in-depth knowledge, leads into the second related criteria presented by Stake (2005)—opportunity to learn. Stake (2005) argues that the opportunity to learn by studying phenomenon of interest supersedes 'representativenesss' as the most important criterion to apply in the process of case selection. Focusing on one case is beneficial as it enables the researcher to acquire a deep knowledge of that case (Stake,

2005). A single-case approach is deemed appropriate for this thesis because understanding this one case would allow for maximum richness and depth of data with limited time and resources.

Accessibility is also important to consider when selecting a case and is part of the rationale for selecting Ontario as the geographic location for the case study. As discussed in further detail later in this chapter, the researcher is uniquely positioned as an insider, which provides multiple benefits in the data collection process and thereby leading to greater opportunities for learning and knowledge building.

Now that Stake (2005)'s case selection criteria of representativeness; opportunity to learn; and, accessibility have been reviewed, the rationale for selecting Ontario as the geographic context for the case and the Blue Mountain Resort in particular is explained below.

2.4.1   Case Selection: Rationale for Selecting Ontario

Ontario was selected as the geographic context for the case for two reasons. First, Ontario ski resorts play an important role in the development of the demand for skiing in Canada and across North America despite being a relatively small player in the North American market based on skier visits[4]. Of the 75.1 million skier visits recorded by the North American ski resort industry in 2004-2005, the Canadian market share was 24.3% or 18.2 million skier visits while the Ontario market share comprised of 3.5 million skier visits or 4.6% of the North American market (Audet, 2005).

Although the Ontario ski resort industry holds only a small portion of the North American market share, it plays an important role in the development of the demand for skiing in Canada and across North America. Ontario has the largest proportion of alpine skiers in Canada with 1 102 000 or 33% of all Canadian alpine skiers (Canadian Ski Council, 2004). The case study was chosen from southern Ontario as the majority of active skiers come from this region and 35 of 40 (88%) of Ontario ski resorts are located in southern Ontario[5].

The Ontario Snow Resorts Association (OSRA) is the Ontario ski resort industry's voice as its membership comprises of 58 Ontario alpine and nordic ski resorts as well as over 65 associate members whom mainly comprise of vendors that supply goods and services to ski resorts (OSRA, 2005).   As a membership-based organization, OSRA is funded exclusively through membership fees.   OSRA

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[4] Skier visits is a common metric used in the industry and indicates the alpine skier/snowboarder volume at ski resorts. A skier visit qualifies as one person visiting a ski resort for all or any part of a day or night for the purpose of skiing as determined by the number of lift tickets issued.

[5] Southern Ontario is the portion of the Province which lies south of the French River and Algonquin Park.

serves its members as a key information provider on best practices for ski resort owners and operators in Ontario.

The second reason why Ontario is selected as the geographic context for the case is based on the fact that OSRA has actively been promoting environmental best practices to its membership since 2003 through the creation of the OSRA Environmental Best Practices Taskforce (Canadian Centre for Pollution Prevention, 2003). This taskforce serves as a forum on issues related to pollution prevention, where ski resort operators can exchange information on best practices and work collaboratively with one another and with other partners to prevent pollution locally and regionally (Canadian Centre for Pollution Prevention, 2003). The taskforce has developed an action plan that reflects the environmental priorities of ski resorts across Ontario. The activities of the taskforce are unique to the Canadian ski resort industry and as such it is likely to expect that participating ski resorts in the OSRA taskforce are more fully engaged. The ski resort chosen as case study is a participating member of this taskforce.

As mentioned earlier, accessibility is important to consider when selecting a case and is part of the rationale for selecting Ontario as the geographic location for the case study. Between 2003 and the time of this work (May 2007), the researcher served as the secretariat of the OSRA Environmental Best Practices Task Force. With an established network within the OSRA membership, the researcher is uniquely positioned as an insider, a role which lends itself to greater accessibility in terms of data collection and consequently greater opportunities for learning and knowledge building. Despite the benefits of greater accessibility, there are also potential pitfalls associated with the researcher being an insider and these are addressed in section 2.5.2.

2.4.2   Case Selection: Rationale for Selecting Blue Mountain Resort

Two types of case studies best explain the rationale for choosing Blue Mountain Resort (BMR). Stake (2005) termed the 'intrinsic case study' as a case which is examined primarily because the case itself is of particular interest due to its uniqueness. Despite having seemed less concerned about seeking generalizations in a case, Stake (2005) termed the 'instrumental case study' as a case which is examined primarily because the case represents other cases or because it is typical to a certain extent of other cases.

When contrasting BMR circumstances to those of the broader ski resort industry, one is able to identify the circumstances that make BMR unique from some ski resorts and similar to others.

Before comparing the BMR circumstances to the broader ski resort industry, a few data gaps had to be overcome. Firstly, as mentioned previously, ski resorts fall into one of two North American Industry Classification System (NAICS) categories based on what types of services a ski resort offers.

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The main differentiation between the two categories is that 'NAICS 721113 Resorts' describes ski resorts with accommodations, whereas 'NAICS 71392 Skiing Facilities' describes ski resorts without accommodations. The challenge with having these two categories is that 'NAICS 721113 Resorts' includes all types of resorts, not just those that offer skiing activities, thereby making it difficult to get an accurate overall picture of the ski resort industry. Further, when viewing the most recent 1997-2003 data on 'NAICS 71392 Skiing Facilities', the number of active establishments was not reported as the data collected by Statistics Canada were deemed too unreliable to be published. Consequently, these data gaps have led the researcher to apply the two NAICS categories to the 2005 data collected by the Canadian Ski Council (via the regional ski resort industry associations) as an alternate way of estimating the composition of ski resorts in Canada. The researcher relied on the National Ski Areas Association and the United States Economic Census to acquire the estimates for the composition of ski resorts in the United States The only notable difference here, was that the most recent United States Economic Census (2002) did publish the number of active establishments that fall within the 'NAICS 71392 Skiing Facilities' category.

Overall, it is due to the above mentioned data gaps, that some of the data presented in table 2.1 are based on estimates (i.e. total number of Canadian and United States ski resorts and number of NAICS 721113 Resorts).

The data presented in table 2.1 contrast the BMR circumstances to those of the broader ski resort industry in Canada and the United States. Through this comparison it is evident that BMR exhibits unique phenomenon that make it of particular interest—hence making it an intrinsic case study. For instance, there are only 52 ski resorts that publicly report on their environmental activities and none are Ontario ski resorts. Similarly, there are no other Ontario ski resorts and only 21 in North America that are fully or partially owned by a publicly traded corporation. Given these unique attributes, some findings from the case study will not be representative of other Ontario ski resorts or the broader ski resort industry in Canada.

Table 2.1: Contrasting Circumstances at BMR with the Broader Ski Resort Industry

Categories of Circumstances	Circumstances at BMR	Estimated Number of Ski Resorts with similar circumstances to BMR			
		Other Ontario Ski Resorts	Other Canadian Ski Resorts	United States Ski Resorts	Estimated Total Number of Canadian and United States Ski Resorts[6]
Public Reporting on Environmental Activities[7]	Reports annually to the National Ski Areas Association on the Environmental Charter.	0	2	50	478 (U.S.) + 229 (Can) = 707 ski resorts
Range of services a ski resort offers according to North American Industry Classification System (NAICS)	NAICS 721113 Resorts Provides guests with a total resort experience where skiing is one of many attractions available. Provides short-term lodging facilities to accommodate vacationers and provide full-service suites and guest rooms. Feature indoor and outdoor leisure activities on premises on a year-round basis.	6[8]	42[6]	113[9]	
Full or partial ownership by a publicly traded corporation[10]	Partnership with one of only three publicly traded corporations that own ski resorts in North America. Intrawest has 50% ownership of BMR.	0	3	21	

The comparison made in table 2.1 also revealed that BMR resides in the same industry classification as six other Ontario six resorts. As such, BMR operates its ski facilities in combination with the provision of full-service accommodation and shares these circumstances with 161 of the estimated 707 ski resorts in North America. Given these shared circumstances, some generalizations from the case study findings can be made.

Overall, BMR exhibits a strong potential for the researcher to gain an understanding of the sustainability of BMR and some findings from the case study can be used to illuminate the situations of other resorts in Canada and the United States where shared circumstances exist.

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[6] Sources: NSAA (2006d) and Canadian Ski Council (2005)

[7] Source: NSAA (2006a)

[8] This number was arrived at by applying the NAICS 721113 Resort category to the 2005 data collected by the Canadian Ski Council.

[9] This number was arrived at by taking the number of ski areas operating in the United States in 2004-2005 as reported by the NSAA (i.e. 492 ski resorts), and subtracting the number of ski resorts that fall within the NAICS 71392 Ski Facilities category as reported by the United States Economic Census Industry Service Report in 2002 (i.e. 379 ski resorts) to arrive at 113 ski resorts that are estimated to fall within the NAICS 721113 Resorts category.

[10] Sources: American Skiing Company (2005); Intrawest Corporation (2006); and, Vail Resorts (2006)

2.5   Data Collection

Yin (2003) and Creswell (1998) recommend using multiple information sources for case studies to validate data and build an in-depth picture of the case. This thesis employs three forms of data collection: secondary documentation, participant observation and interviews. Most of the data collected is qualitative. Quantitative data are collected using sources of previously collected information in the form of government reports or previously conducted industry surveys.

This thesis took place in two phases. The initial stage of research involved data gathering though a review of secondary information sources as well as participant observation. The second phase occurred over a period of several months from August, 2006 to May, 2007 through interview data collection and participant observation. Data collected over a period of years or decades are not of value to this investigation as its focus is on what the application of the sustainable ski resort principles reveal about the case study during the 2006/2007 season.

2.5.1   Secondary Information Sources: Literature and Secondary Documents

Literature

The Gibson principles are used for reviewing sources of literature that discuss the desirable characteristics of businesses and recreation/tourism destinations in sustainability terms. The sources came from three bodies of literature (i.e. sustainability, corporate sustainability, and sustainable tourism). The literature informs the development of sustainable ski resort principles that are relevant to the sector. Rather than looking at the three bodies of literature separately, the arguments from all literatures are examined concurrently and insights are used to adapt each Gibson principle in the context of defining a ski resort as both a sustainable business and a sustainable recreation/tourism destination.

The literature that describes the current state of sustainable ski resort discussion is used to represent the baseline from which to demonstrate whether the sustainable ski resort principles advance the debate about what constitutes a sustainable ski resort.

Secondary documents

Secondary documents specific to the current state of the sustainable ski resort discussion (i.e. annual reports from OSRA and the National Ski Areas Association, sustainability reports form various ski resorts, and information materials from the OSRA Environmental Best Practices Task Force) are used to formulate an understanding of the current state of sustainable ski resort discussion.

Secondary documents specific to the case study are used to describe the case context and history and to support the interpretation of other primary information. Documents that are used include:

operational and meeting minutes; reports, corporate specific strategic plans among others (i.e. ski resort documentation, including procedures, manuals, newsletters, staff suggestion forms and reports).

2.5.2   *Primary Information Sources: Researcher's Role through Participant Observation*

Participant observation is a differentiated mode of observation whereby the researcher assumes more of a role as an insider rather than as a passive observer (Flick, 2002; Yin, 2003). The researcher uses observations as a visual data collection method to understand practices, interactions and events that occur in the field. From an insider's perspective, the research has a wider set of opportunities for collecting data, yet at the same time is vulnerable to potential biases (Yin, 2003).

The researcher has professional experience as the secretariat of the OSRA Environmental Best Practices Task Force and, as a result, assumes a functional role as a change agent in encouraging ski resorts to adopt practices that lead to more sustainable outcomes. The researcher's involvement with the Ontario ski resort industry is best characterized as an active membership role as described by Adler and Adler (1987) where the researcher assumes a dual role as member of an organization (i.e. OSRA Environmental Best Practices Task Force) and undertakes a research role in addition to the functional role that member holds in the organization.

Coghlan and Brannick (2001) examined the topic of conducting research in one's own organization through participative research and warned about the potential role conflict that exists: "…the organizational role may demand total involvement and active commitment, whereas the research role may require a more detached, more theoretic, objective and neutral observer position." Given the potential role conflict that exists between the researcher and her interest in furthering the success of the OSRA Environmental Best Practices Task Force, a balanced approach must be pursued. Hence the dual role as a change agent and researcher has both advantages and pitfalls for the data gathering process.

There are multiple advantages to the data gathering process as an insider. First, as an insider, the researcher has an established pre-understanding that comes from being exposed to the interpersonal, social dynamic and social structures of the group under study (Coghlan and Brannick, 2001; Adler and Adler, 1987). Second, as an insider, the researcher has established interpersonal relationships with the group that can be leveraged to gain access to information and additional contacts (Coghlan and Brannick, 2001). This is demonstrated by virtue of the fact that the researcher has an established rapport and high degree of trust amongst the network of OSRA members. Both pre-understanding and access present the researcher with the opportunity to gain closer, more personal, more accurate and more in-depth insight that otherwise may never have been discovered with an outsider role (Adler and Adler, 1987). Third, as an insider, the researcher is in a position to ask more precise questions which enhances the opportunities for getting richer interview data (Nielsen and Repstad, 1993). Lastly, being

an insider enhances the researcher's ability to identify the gap between commitments and actions within the organization (Nielsen and Repstad, 1993).

Having an active membership role presents four common pitfalls that have the potential to harm the data-gathering process. Firstly, becoming too closely aligned with one group can prevent the researcher from gaining access to perspectives from other groups (Adler and Adler, 1987). Despite the researcher's involvement with the Ontario ski resort industry, the researcher maintains a significant distance and distinction from the industry. As a change agent, the researcher's employer, The Canadian Centre for Pollution Prevention, is an environmental NGO that is independent from the Ontario ski resort industry. As a result, the researcher is able to avoid this pitfall.

Secondly, obtaining a balanced perspective is a challenge as insider affiliation may bias the researcher's own perspectives and understanding (Nielsen and Repstad, 1993; Coghlan and Brannick, 2001). As Nielsen and Repstad (1993) explain, when analyzing data, it is challenging to avoid being influenced by preconceived ideas or perceptions. Often, the researcher's personal experiences and values shape the interpretation and reporting of research findings. Here, as a result of an established rapport, a danger exists that the researcher will soften their analytical perspective by accepting uncritically the views of other members as their own (Adler and Adler, 1987). In order to avoid this pitfall, the researcher took two measures as suggested by Adler and Adler (1987). First, the researcher periodically withdrew from the setting. Second, the researcher periodically realigned her perspective with those of other groups in order to analyze the setting critically. Both of these measures are pursued by having a dialogue with others (i.e. academia, former employees from the organization studied and other stakeholders) to find internal as well as external perspectives and ideas (Nielsen and Repstad, 1993). By gathering evidence from different perspectives, this will serve to enhance the quality of the case (Yin, 2003). Further, the gathering of quantitative documentation for corroborating purposes will serve as a measure for distancing the researcher from what is being studied. All of these suggestions are pursued to the fullest extent possible.

Thirdly, given the researcher's role as a change agent, there is a risk that the researcher will influence the phenomenon being studied (Adler and Adler, 1987). For instance, the researcher's involvement in the OSRA Task Force may influence key informants—as the key informants may try to fulfill perceived expectations of the research. This can also be viewed as a benefit however as a researcher's role as change agent can offer opportunities for exploring the linkages between theory and practice, assist decision making and engage decision makers in ongoing reflection and feedback (Holian, 1999).

Fourthly, there is a chance of overlooking details of a case being studied (Nielsen and Repstad, 1993). For instance, this can occur when the key informant thinks the researcher knows everything, and

as a result leaves out details. Here, the researcher made every attempt to identify and address information gaps.

Despite the pitfalls, the measures described above serve to safeguard the researcher's commitment to her academic role by providing a balanced approach. In light of the above discussion, when collecting information for this thesis, the researcher revealed her dual role so that key informants were made fully informed of the research and its purpose prior to the disclosure of information.

2.5.3   Primary Information Sources: Interviews

Interviews are a useful method of information gathering. According to Yin (2003), interviews are one of the most important sources of information for the case study. The intention behind interviews is to describe and understand key informants' experiences and perspectives as they are conveyed verbally (Kvale, 1996; Creswell, 1998). Why the key informants experience and act as they do is primarily a task for the researcher to evaluate (Kvale, 1996).

The interviews conducted for this research serve two purposes. First, the interviews are intended to gain further understanding on the current state of the sustainable ski resort discussion from various viewpoints and experiences.

Second, the interviews are intended to gain insights on the sustainability achievements and challenges within the case study. Here the findings will be used to demonstrate what the application of the sustainable ski resort principles reveals about the extent to which BMR conforms to the idealized model of a sustainable ski resort.

The interview questions were designed to seek out information that will help answer the thesis questions: What constitutes a sustainable ski resort? and How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort? This process involved identifying the thesis information requirements and matching these requirements with the appropriate interview questions and key informants. The thesis information requirements were organized under the following categories:

- Ideal sustainability outcomes at ski resorts
- Use of sustainability principles to guide more sustainable outcomes at ski resorts
- Vision of a sustainable Blue Mountain Resort
- Present outcomes of decision-making at Blue Mountain Resort
- Use of sustainability principles to guide more sustainable outcomes at Blue Mountain Resort

The interview questions were designed to address the thesis information requirements and were subdivided into two key informant categories: case study contacts and sustainable ski resort discussion

contacts. The matching thesis information requirements, interview questions and assigned key informant categories are found in Appendix A. Overall, the key informants were asked questions that prompted them to provide their understanding of what constitutes a sustainable ski resort. In May 2006, the interview protocol was designed and submitted for ethics review, which was approved with minor changes by the University of Waterloo's Office of Research Ethics.

In-depth semi-structured interviews were conducted with key informants whom were chosen to represent a diversity of views and realities from academia, environmental non-governmental organizations, governments, and the ski resort industry.   A key informant's viewpoints are more likely to be expressed in a semi-structured interview versus a fully structured interview (Flick, 2002).   In reflection of the diversity of key informants, the case study contacts and sustainable ski resort discussion contacts were further subdivided into key informant categories according to organization type.   Here, interview questions were adjusted to match each key informant's organizational affiliation and job responsibilities with the intent of addressing the knowledge area each key informant was most familiar with.   The quantity of open-ended responses presents a challenge in summarizing the findings and will be addressed in section 2.6.

The researcher selected key informants based on snowballing and sequential sampling—two types of non-probability sampling used in this research. Non-probability sampling does not involve random selection. The selection of key informants is subjective in non-probability sampling and is based on the judgement of the researcher.   The researcher made a significant amount of effort to identify the most knowledgeable interview candidates while maintaining a balance of stakeholders, and a variety of perspectives. Whether it was in a North American or European context, specific to ski resorts or other recreation/tourism destinations, key informants reflected upon their experiences.

Subsequently, during the closing of the interview, each key informant is asked if there are individuals who he or she felt are critical to this research. This technique is known as snowball sampling whereby individuals are selected from a broader network. The number of interviews conducted is determined through the use of sequential sampling whereby a saturation point is reached. The saturation point is determined when new interviews yield little additional information on the research questions (Neuman, 2003).

The majority of interviews were conducted over the telephone. When possible, the interviews were conducted face-to-face. Face-to-face interaction has a greater likelihood of the interviewer establishing a rapport with the key informant which allows for a greater depth of response (Palys, 1997). The interview length was limited to between 30 to 45 minutes.

The number of key informants and type of interview are presented below in table 2.2 according to the further subdivided key informant categories.

Table 2.2: Overview of Key Informants

Key Informant Category	Number of Key Informants	Type of Interview
Case Study Contacts		
Environmental and Community Non-Government Organizations	3	Phone
Government Agency / Public Institution	3	Phone
Ski Resort Industry	5	Face-to-face
Former Ski Resort Industry Employees	2	Phone
Sustainable Ski Resort Discussion Contacts		
Academia	3	Phone
Environmental and Community Non-Government Organizations	4	Phone
Ski Resort Industry	4	Phone
Government Agency / Public Institution	1	Phone
Consultants	2	Phone
Total Key Informants:	27	

The interviews used the questioning technique known as funnelling, where the sequence of questions will move gradually from general to specific (Neuman, 2003). Funnelling is a way of structuring questions in sequence to explore a topic thoroughly and to funnel down to specific and explicit questions that get to the heart of an issue. The technique begins with open-ended questions and is followed by probing, closed and summarising questions. The purpose of probing is to deepen the response to a question, when an ambiguous or incomplete answer is given. In essence, probes are used to clarify or complete a response.

Like other methods of information gathering, interviews have potential limitations to obtaining reliable and valid knowledge. First, it is often raised that knowledge obtained from interviews has the tendency to be rather subjective as it depends heavily on the subjects that are chosen to be interviewed (Kvale, 1996). Subjectivity prevents making inferences about the entire population. The results represent only the perspectives of the group of individuals interviewed. It is not the intention of this thesis to make inferences about the entire population. Rather, the researcher selected key informants with the intention of collecting a diversity of views and realities on the sustainable ski resort discussion. In collecting varied views and realities from academia, environmental non-governmental organizations, governments, members of the ski resort industry and others, the aim is to strive towards an understanding of the whole (Stake, 2005). In the case where opposing viewpoints exist, this thesis evaluates the strength of the arguments made based on the soundness of their underlying assumptions, logic and scope upon which they are made. This evaluation is used to gain new insights, develop lines of thought and identify irresolvable contradictions where future research is needed.

Second, respondents might provide answers that they felt the interviewer was seeking rather than reveal their true perceptions (Kvale, 1996). This researcher provided anonymity as a condition of participant involvement in this research which minimized the challenge of gathering true perceptions. The results are presented at a general level (i.e. group affiliation) and specific reference to names is left out. Full anonymity of the entire case however is not given as it suppresses important background information (Yin, 2003).

Finally, this researcher felt that the perspectives expressed by the many respondents during the interviews are consistent with the viewpoints that had been expressed in previous, informal conversations. Where required, data from the interviews are corroborated with information from other sources (Yin, 2003). In some cases, interviewees were asked specific questions of fact and were used to confirm, clarify, or elaborate on information received in information gathering interviews.

Participation in this research was voluntary. Potential participants were initially contacted via telephone to convey the context of the research and the scope of their participation. The initial contact was then followed by the delivery of the invitation letter, thesis backgrounder and consent form via e-mail—these materials are found in Appendix B, C and D. Follow-up contact was made by telephone. Upon receiving the written consent, the interview was scheduled. Letters of appreciation were distributed to all interviewees within two weeks of completing the interviews.

A recording device was not used for the interviews. Rather, this researcher used note taking as a method of transcribing interviews for documentation. All participants received a copy of the transcribed interview notes and were invited to review and verify these notes. The transcribed interview notes are an abbreviated form of a transcript. As agreed with key informants, their comments are kept confidential. In no circumstances are comments identified to the name of the key informant, as responses are referred to by their key informant category.

A contact summary sheet was used as the initial method for organizing and reflecting upon the salient points that were raised during the interview (Miles and Huberman, 1994). The process of completing the contact summary sheet involves two approaches to interview analysis—meaning condensation and meaning categorization (Kvale, 1996). Meaning condensation involves condensing long statements made by key informants into briefer statements that capture the main meaning of what was said (Kvale, 1996). Meaning categorization involves coding long statements into simple categories (Kvale, 1996). Both approaches to interview analysis are used in completing the contact summary sheet. The contact summary sheet serves as a practical way to do a first-run at reviewing and categorizing the transcribed interview notes and the researcher's reflective remarks. The contact summary sheet is provided in Appendix E.

2.6   Data Management, Analysis and Verification

2.6.1   Data Management

Data management is important as a means of storing, organizing, and retrieving the data collected for this thesis. How the data are managed (i.e. recorded and tracked) varied depending on what data collection method is used. Data from secondary information sources (i.e. literature and secondary documents) are reviewed and salient points are captured in notes taken by the researcher. Data from the interviews are recorded by note-taking and then transcribed by the researcher. Data from participant observations are handwritten in notebooks by the researcher, which are reviewed and relevant materials are highlighted for the analysis stage.

In terms of keeping track of the data, several data coding matrices were designed for organizing the multiple sources of data, making it easy for retrieving relevant data segments for analysis purposes. The structure of the data coding matrices is discussed further in the section below.

2.6.2   Data Analysis

The purpose of data analysis is to draw valid meaning from the data collected in this thesis. The qualitative and quantitative data for this thesis are collected from multiple sources and are analyzed primarily in qualitative ways. Qualitative analysis is used to build a descriptive set of critical stories and interesting quotes and quantitative data are combined into the larger perspective to support the findings.

This thesis uses coding as a method for data management and early data analysis (Miles and Huberman, 1994). Codes are categories used to organize and retrieve qualitative data of varying size (i.e. words, phrases, sentences or whole paragraphs and can be created from research questions, key concepts and issues) (Miles and Huberman, 1994).

Coding is the primary data analysis method used for developing the sustainable ski resort principles. The Gibson principles, which are introduced in chapter 3, served as a basis for creating a list of codes. Coding assists in the incorporation of insights as the means for adapting the Gibson principles to the context of a ski resort. As part of the adaptation process, key words and ideas are identified and categorized into themes for each literature source and then are sorted under the appropriate Gibson principle for further consideration and possible incorporation.

A subsequent method used in this thesis to analyze the data involves the use of data coding matrices. The use of a data coding matrix serves to condense and organize data to permit the drawing of coherent conclusions (Miles and Huberman, 1994). The coding matrices help to identify patterns

and reoccurring themes and cross-check and verify the accuracy of the data obtained from the three different data sources (i.e. secondary information sources, interviews, and observations in the field).

Once meaning is derived from the data and the sustainable ski resort principles are developed, further data analysis is conducted using ideal type analysis. Ideal type analysis is used in two separate stages of this thesis, both to validate the contribution of the sustainable ski resort principles to the debates on what constitutes a sustainable ski resort, and as discussed earlier under the case study method, being the methodological approach to applying the principles in the case study. Recall earlier that Neuman (2003) cites Max Weber's method of ideal type as a form of qualitative data analysis that allows for an 'ideal type' to serve as a set of standards against which real-life organizations can be assessed.

In this thesis, the sustainable ski resort principles are best characterized as an 'ideal type'. As such, the sustainable ski resort principles serve as an idealized model of standards against which both the current understanding of sustainable ski resorts and cases of individual ski resorts can be compared. The findings from the ideal type analysis are used to understand and study the sustainability of ski resorts, despite the fact as Neuman (2003) points out, that no real-life organization perfectly matches with the idealized model.

2.6.3   Data Verification

A common challenge facing the researcher is ensuring that the findings from the case are valid. As there are imperfections in each data collection method presented above, several strategies are employed in this research to preserve the multiple realities of a case and ensure internal validity. Validity means the degree to which a data collection method investigates what it is intended to investigate (Kvale, 1996).

The practice of triangulation serves to both validate findings as well as help to identify different views and realities. Triangulation is valued for the fact that it serves to reduce the likelihood of misrepresentation by requiring the convergence of data gathered by multiple sources of information (Ely, 1991; Yin, 2003). Triangulation should also be thought of as a way to corroborate specific data that are of a factual nature (Guba and Lincoln, 1989; Yin, 2003). Hence it is important that various data collection methods be applied in order to gather a more complete and valid set of findings. As mentioned, the independent methods used in this research are: interviews, personal observations and a review of written documents. These methods are used to verify and attach meaning to different points of view.

In addition to triangulation, other strategies such as prolonged engagement and persistent observation serve to document what is really happening and not what is being put on for the

researcher's benefit (Guba and Lincoln, 1989). Prolonged engagement involves substantial involvement at the site of inquiry in order to overcome the risks of misinformation (Guba and Lincoln, 1989). Persistent observation helps to identify issues that are most relevant to the research questions and results in added depth. These techniques are also used by this researcher to help construct a deeper understanding and to help establish a basis for what is important and relevant and what is not.

To increase the validity of the case study, the first draft of the case study was delivered to case study participants for review. The review process increases the validity of the case study (Yin, 2003) as participants verify the accuracy of the quantitative and qualitative data presented. All case study participants reviewed the first draft. Any inaccuracies within the facts of the case were identified and corrected.

In summary, the research methods described above and the conceptual framework presented earlier in this chapter encompass the overall research design that is used to answer the thesis questions. The next chapter in this thesis uses the instruction of the research design as a means of developing the sustainable ski resort principles.

CHAPTER 3: THE SUSTAINABLE SKI RESORT

As stated in the research design, this thesis is built upon an integrated systems approach which functions as a lens for viewing ideas on what constitutes a sustainable ski resort. In chapter 2, the research design describes the data collection methods and data analysis used in this thesis.

The purpose of chapter 3 is to undertake the process of developing the sustainable ski resort principles under the instruction of the research design. The sustainable ski resort principles contribute to the understanding of what constitutes a sustainable ski resort by delineating the ideal outcomes and key requirements needed for a sustainable ski resort.

This chapter will start by introducing the tools of life cycle thinking and systems diagrams to assist in capturing the key linkages and interdependencies that exist between a ski resort and the biophysical and societal systems they are nested within. Both will lend a frame of reference for the development of the sustainable ski resort principles by requiring the scope of the principles to capture the key linkages and interdependencies that exist between a ski resort and the biophysical and societal systems they depend upon.

Using the conceptual framework, this chapter adapts the Gibson principles to the context of a ski resort by using them as an analytical framework for reviewing and comparing academic sources of literature that discuss desirable characteristics of businesses and recreation/ tourism destinations in sustainability terms. The intention of this comparison is to incorporate context specific insights into the Gibson principles such that the Gibson principles are adapted for, and are relevant to, ski resorts. Emerging from this adaptation process are the sustainable ski resort principles which represent the key requirements needed for ski resorts to progress towards sustainability.

Once developed, chapter 4 uses the sustainable ski resort principles as the basis for conducting an ideal type analysis with the current state of the sustainable ski resort discussion. The intention of the ideal type analysis is to demonstrate whether the current state of the sustainable ski resort discussion falls short of answering what constitutes a sustainable ski resort.

3.1   A Systems Perspective of a Ski Resort

As stated in the methodology, an integrated systems approach is used as a lens to formulate a view of what constitutes a sustainable ski resort. This section introduces the tools used to identify and illustrate the key linkages and interdependencies that exist between ski resorts and the biophysical and societal systems they are nested within. Combined, the tools of life cycle thinking and systems diagrams enable this thesis to devise a systems perspective of a ski resort.

Traditional life cycle thinking has been used as a tool for evaluating products, where the intention is to reduce potential environmental damage along the entire life cycle of a product—from 'cradle to grave' (Scholz and Tietje, 2002) or as others advocate from 'cradle to cradle' (McDonough and Braungart, 2002).

For a ski resort, life cycle thinking differs from businesses that manufacture products in that the 'ski product' is the guests' experiences, rather than material goods. For the purpose of this thesis, life cycle thinking is used in the context of the two facets of the 'ski product'. First, the 'ski product' is comprised of the services that ski resorts provide to their guests (Schendler, 2003). This includes, the life cycle of materials and resources used by a ski resort to deliver these services as well as the life cycle of the ski resort itself using Butler (1980)'s tourism destination life cycle model to describe the evolution cycle of tourism destinations over time associated with tourism development. Second, the 'ski product' is comprised of the 'throughput' involved with delivering the services. Here, guests travel to the ski resort, consume the experiences of the 'ski product' and then return home (Schendler, 2003).

The life cycle of the ski product can be characterized as comprising of three stages across a life cycle chain in which materials, energy, water and human inputs and outputs flow. "A life cycle chain is made up of all the activities that go into making, selling, using, transporting and disposing of a product or service, from initial design, right through the supply chain" (UNEP, 2005). Each stage represents a category of impacts across the life cycle chain in which the ski resort owner or operator has influence or control over. The three stages of life cycle impacts are categorized as: upstream, direct and downstream activities and are depicted in figure 3.1 as a life cycle chain.

Figure 3.1: Life Cycle Chain of a Ski Resort
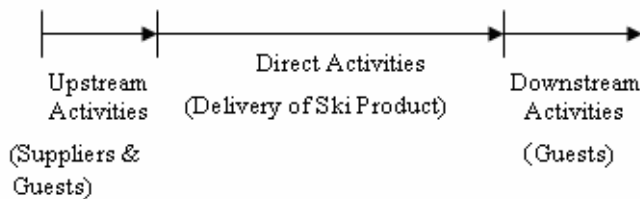
The first stage of life cycle impacts can be found in upstream activities of the ski resort and encompass the linkages and interdependencies that exist between the ski resort, its suppliers and its guests. For instance, many of the goods and services offered at ski resorts are provided by a supply chain of subcontracted companies and organizations. An important consideration is that a ski resort owner or operator is often not in direct control of the life cycle impacts of the products and services used. In these circumstances, if full responsibility is to be taken for the entire life cycle of products and services it needs to be shared from cradle to cradle (McDonough and Braungart, 2002), with suppliers,

consumers and others in the life cycle chain. Life cycle thinking requires that ski resorts work closely with their suppliers, their guests and others in the life cycle chain to improve the sustainability performance throughout the life cycle of the ski product delivered by the ski resort.

The second stage of life cycle impacts encompasses the direct impacts that ski resort owner and operators have control over such as the operation, maintenance and expansion of ski resort activities that cater to skiers. In these circumstances, ski resort owners and operators are directly responsible for the practices employed in these activities.

The third stage of life cycle impacts can be found in downstream activities of the ski resort and encompass the linkages and interdependencies that exist between the ski resort and the guests whereby the ski resort has the ability to influence the behaviour or consumption patterns of its guests. For instance ski resorts can educate guests about positive actions they can take in their own lives as a means to live more sustainably (Schendler, 2003).

Just as life cycle thinking is a helpful tool in identifying the key linkages and interdependencies between human and biophysical systems, so too are systems diagrams helpful as a tool in illustrating the most significant linkages and interdependencies that exist between a ski resort which is nested within biophysical and societal systems. Figure 3.2 depicts a systems diagram and serves to illustrate how a ski resort is nested within a complex set of systems that include:

- The built system consisting of ski trails and the buildings and physical infrastructure needed to house and service various types of ski resort activities
- The human activity system consisting of the host community, businesses, employment, tourists and public services
- The biophysical system of plants, animals, and soils
- The environment consisting of the elements that provide life support for all living things, i.e. solar, energy, air, water and minerals

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Figure 3.2: Systems Diagram
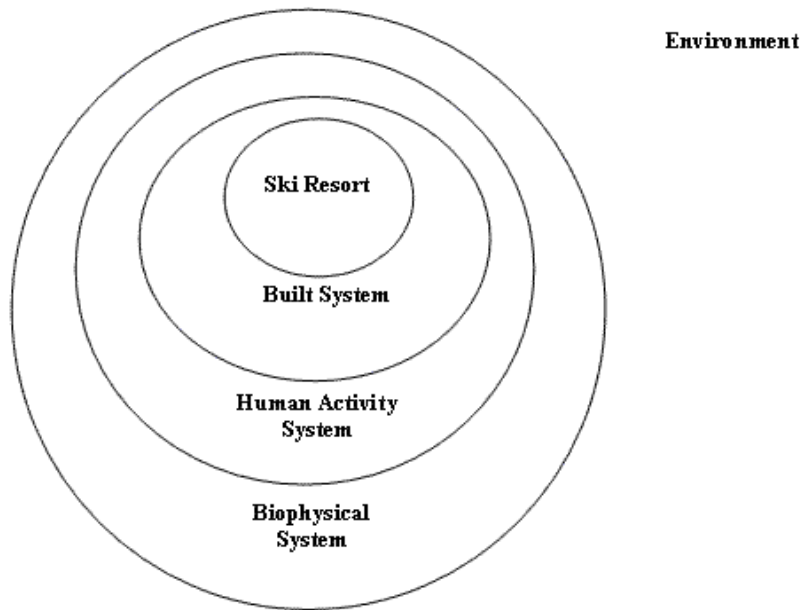
(Derived from: Kay *et al*., 1999)

These systems operate within the context of the environment and are influenced by parts within the environment. These parts create the inputs to a system thereby influencing the behaviour of that system. Similarly, the environment is influenced by the behaviour of the embedded system. For ski resorts, this means that their activities affect the environment and the environment affects ski resorts. For instance, greenhouse gas emissions associated with the travel to, and operation of ski resorts, makes ski resorts both vulnerable to, and contributors to, climate change.

Figure 3.3 illustrates the entities of the built system that a ski resort has control or influence over. They are:

- Buildings
- Physical infrastructure: consists of ski runs, roads, water supply and electricity that service the ski resort

Figure 3.3: The Built System
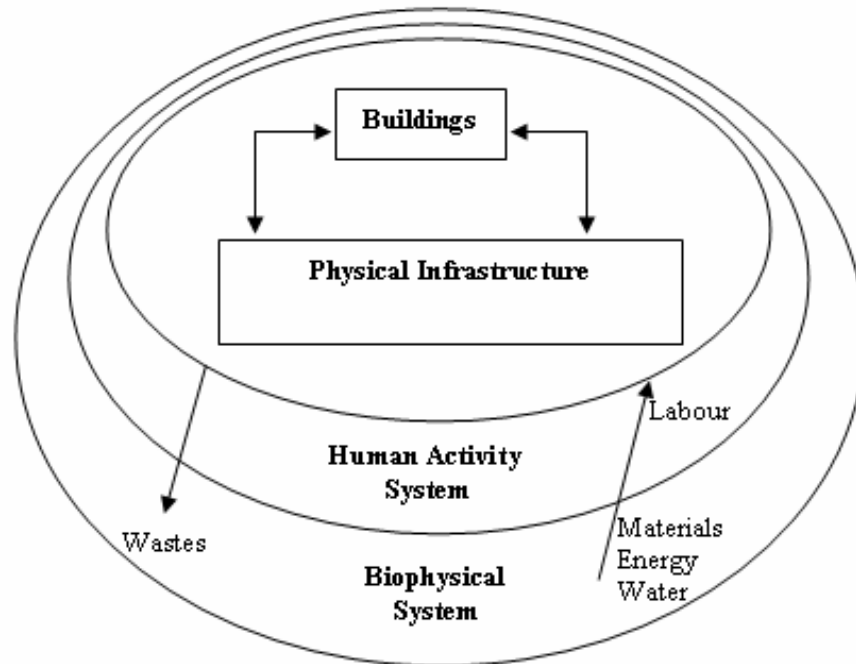
In terms of physical infrastructure, ski runs are a functional feature needed for the operation of a ski resort.   Once designed and constructed by a ski resort, ski runs require continual maintenance (e.g. snowmaking, trail grooming and summer debris removal). Beyond alpine ski runs, a ski resort has influence over physical infrastructure networks—transport, water supply, electricity and so on. The physical infrastructure networks must have adequate capacities in order to service the buildings and activities taking place at a ski resort (i.e. labour, materials, energy and water). The built system also consists of buildings that house various types of ski resort activities such as employment, food services, ski lifts, accommodation and so on. Entities that fall outside the built system are those which the ski resort has no control over such as the nearby town/city and nearby airport. The built system is influenced by the types and amounts of human activities that have to be housed. A built system also returns wastes to the biophysical systems, e.g.: in form of water and air borne pollutants.   Ski resorts

can attract a large number of visitors which can overwhelm the ability of the physical infrastructure and biophysical systems to supply resources and process wastes.

Figure 3.4 illustrates the entities within the human activity system that a ski resort has control or influence over. They are:

- Host community: comprises of government and households, non-governmental organizations and other stakeholders.
- Businesses: comprises of suppliers, producers, and intermediaries
- Employment
- Visiting guests within driving distance of the ski resort
- Public Services: consists of police, fire protection, public transportation, affordable housing and land use development approvals

Figure 3.4: The Human Activity System
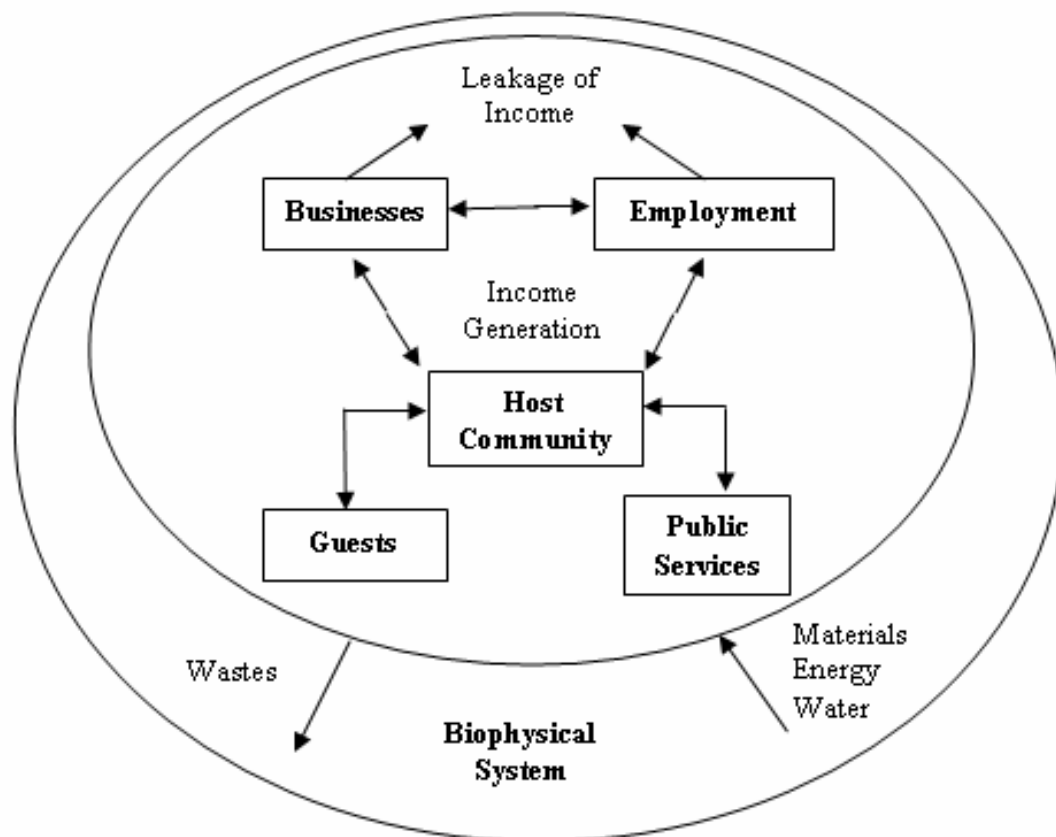
In the context of a ski resort, the human activity system consists of two broad entities, the host community and visiting guests. Unlike other economic activities, the consumers have to travel to the 'ski product' which means that ski resorts can be highly intrusive to host communities and the resulting

movement of consumers can damage the biophysical environment in several ways. Growing numbers of visiting guests will inevitably increase consumption of resources and waste production at a site. The effect of this on the health of the biophysical system will depend on the intensity of use, the ecosystem's carrying capacity and the host community's infrastructure capacity.

Figure 3.5 below illustrates the main components of the biophysical system. Human well-being, and ultimately survival, is fully dependent upon a healthy biophysical environment whereby its processes cleanse the air and water, regulate climate and recycle essential nutrients and restore depleted soils. The healthy functioning of these processes depends on the extent to which they are disturbed, modified and polluted.

Figure 3.5: The Biophysical System
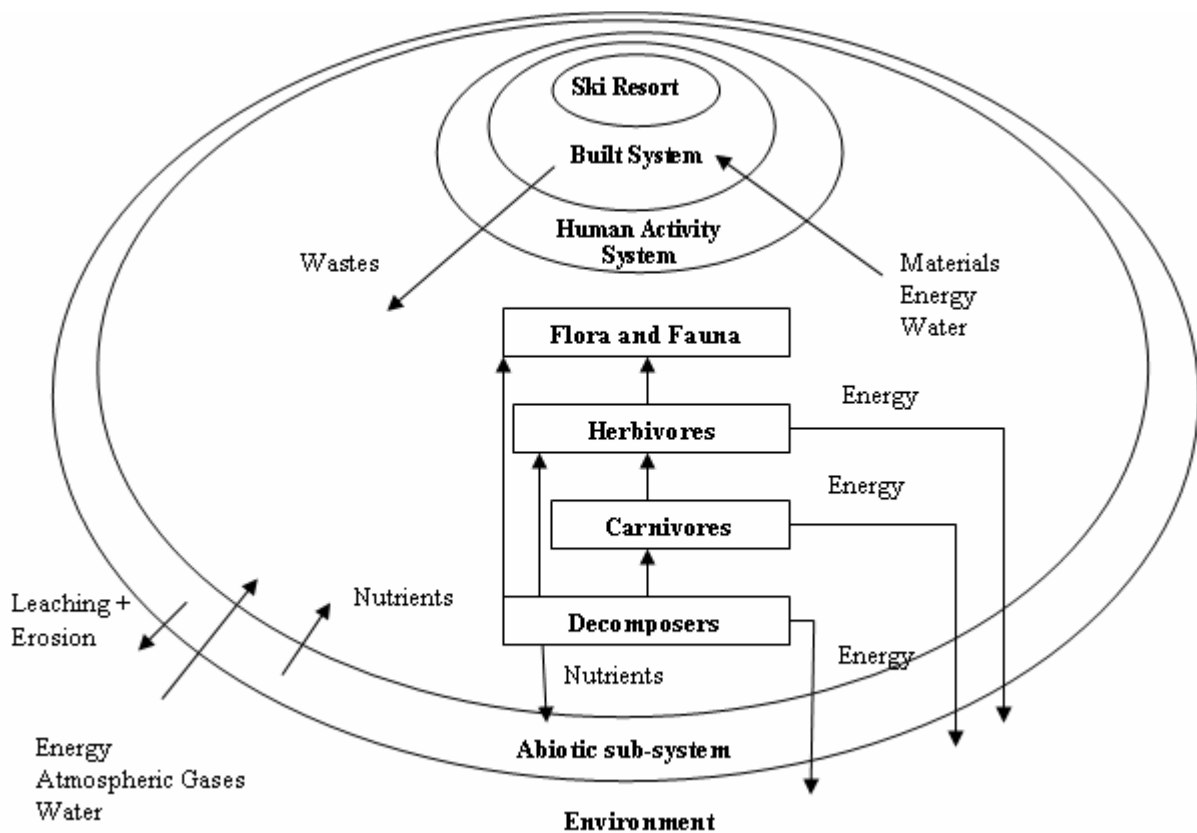
Derived from the field of ecology, biophysical systems may be thought of in terms of three broad entities: biotic subsystems of plants and heterotrophic organisms (i.e. animals, bacteria and fungi) that are linked together by food chains which cycle energy and nutrients; abiotic sub-system of soil, minerals etc.; and, the environment at a particular location (Odum, 1959).

Many biophysical attributes determine the suitability of a physical area for alpine skiing and influence the location of a ski resort, including: terrain, vertical drop, length and variety of runs,

vegetation on slopes to facilitate maximum snow accumulation and reduce drifting, availability of water for snowmaking and climatic conditions that create precipitation of snow.

As described above, the tools of life cycle thinking and systems diagrams lend a frame of reference for the development of a full set of sustainability principles that capture the key linkages and interdependencies that exist between ski resorts and the biophysical and societal systems they are nested within. Using a systems perspective, the case study of BMR is viewed as a system that functions as a whole and is nested with interconnected human and biophysical systems. From such as perspective, the sustainability at BMR is studied.

A systems perspective of a ski resort invokes a set of complex systems that lack explicit boundaries. This thesis does not need to define the boundaries of a specific system when developing the sustainable ski resort principles as sustainability issues cross systems boundaries. The issue of defining systems boundaries becomes necessary when a researcher, or for that matter, a ski resort owner or operator applies the principles to a specific system. Examples will be explored on a limited scale by this thesis as the principles are applied as an idealized model of a sustainable ski resort against the case study. As an extension of this exploratory work, an examination is required of the steps involved in defining systems boundaries whereby the sustainable ski resort principles would then be applied within. This examination extends beyond the scope of this thesis and is identified as an area of future research.

So far, this chapter has expanded upon the conceptual framework used in this thesis through detailed discussion on what a systems perspective of a ski resort might look like. The next section elaborates upon the process involved in adapting the Gibson principles such that they are relevant to ski resorts.

3.2   Adapting the Gibson Principles to the Context of a Ski Resort

This section will outline the purpose behind adapting the Gibson principles and the process by which the adapted principles are arrived at. As acknowledged by Hackling and Guthrie (2006), there are a numerous and continual efforts amongst scholars to adapt sustainability principles for a wide range of purposes and contexts. This section will base its arguments upon what other scholars have done in terms of adapting sustainability principles in general and the Gibson principles specifically.

To recap from section 2.1.3, the Gibson principles were chosen as the preferred set of sustainability principles because they align with an integration systems approach. The Gibson principles serve as core requirements for sustainability. When applied, the Gibson principles provide guidance on a range of decisions, from strategic to specific (Morrison-Saunders, 2006). Overall, the principles are intended to broaden the scope of conventional decision-making to reflect more sustainability-focused decision-making and provide guidance towards more sustainable outcomes (Pope *et al*., 2004; Gibson *et al*., 2005).

Scholars have acknowledged that to be of operational use, sustainability principles need to be context-specific and as concrete, meaningful, practical, comprehensive and credible as possible (Pope *et al*., 2004; Gibson *et al*., 2005). The Gibson principles are described by Gibson *et al.* (2005) as: "…a minimal set of core requirements, all of which would have to be elaborated on and specified for particular places and applications." Consequently, Gibson *et al.* (2005) have invited scholars who follow to adapt the Gibson principles for specific case use.

In light of this invitation, scholars in different research areas have studied how the Gibson principles can be applied to particular kinds of issues (i.e. electricity projects) and have adapted the principles to the context that they are studying. For instance, Rosenthal (2004) adapted and applied the Gibson principles to a case study specific to the electricity sector in China using available literature that discusses the electricity in sustainability terms and in relation to China. Here Rosenthal, (2004) used the principles as the basis for a sustainability assessment and operationalized the Gibson principles by deriving sustainability indicators.

Prior to adapting the Gibson principles it is important to consider the intended purpose that the adapted principles will serve for this will guide how 'specific' the principles need to be in order for them to be operational. As pointed out by Morrison-Saunders and Therivel (2006), sustainability principles can inform a range of decisions from the "most strategic" to "site-specific". Hacking and Guthrie (2006) suggest that the need for concrete criteria is greater at the project level than at the strategic level, hence the challenge is in ensuring that there is sufficient detail within the sustainability

principles such that they are adapted for their intended purpose—to inform decisions by providing a clear direction.

For the purposes of this thesis the Gibson principles serve to provide guidance on what constitutes a sustainable ski resort. Given the strategic, 'big-picture' nature of this examination, the Gibson principles will be adapted to the context of the ski resort sector such that they inform the strategic level questions that are asked in this thesis.

The adaptation process is organized in two parts. First, the Gibson principles are introduced more in depth by describing both the individual requirements of each principle as well as the interconnections between the principles. The Gibson principles operate on an integrated systems approach and as such attention to the interconnections between the principles is as important to what constitutes a sustainable organization as the attention given to the individual requirements behind each principle.

Second, once the Gibson principles are described more in depth, the framework of individual and interconnected requirements is used as a lens through which to view the problem of what constitutes a sustainable ski resort. Here the adaptation process seeks context specific insights by using the Gibson principles as grounds for viewing academic sources of literature that discuss desirable characteristics of businesses and recreation/tourism destinations in sustainability terms. The intention here is to incorporate context specific insights into the Gibson principles such that the Gibson principles are adapted for ski resorts. Emerging from the adaptation process, the sustainable ski resort principles are intended to advance the current understanding of what constitutes a sustainable ski resort.

Of relevance here are the corporate sustainability works of Welford (1997), Hawken *et al.* (1999), World Business Council for Sustainable Development (2000), Elkington (2001), McDonough and Braungart (2002), Dyllick and Hockerts (2002), Doppelt (2003), and Braungart *et al.* (2004) along with the primary sustainable tourism works of Tourism Concern (1992), Wall (1993), Bramwell *et al.* (1996), Butler (1999), Swarbrooke (1999), and World Tourism Organization (2001).

As a whole, the sustainable tourism discussion seems to be compartmentalized amongst the socio-cultural well-being of host communities, regional economic development and the well-being of the biophysical environment. According to Pearce (1995), the original conceptions of sustainable tourism were all closely aligned to a concern with the well-being of host communities. Scholars to follow however found the focus of sustainable tourism principles as "…inward and product-centred, giving primary focus to ecological sustainability over the developmental contributions of tourism" (Sharpley, 2000). Butler (1999) and Hardy *et al.* (2002) argue that more attention needs to be given to the well-being of host communities in the sustainable tourism discussion as attention has primarily been directed at the biophysical environment and economic development. Consequently, an effort was made

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to seek out those contributions from the sustainable tourism literature that devote attention to the holistic concept of sustainability where principles are designed to achieve multiple sustainability objectives.

Below, the Gibson principles are introduced in detail and used for reviewing and identifying literature sources that discuss desirable characteristics of businesses and recreation/tourism destinations in sustainability terms that have relevance to ski resorts.

Socio-ecological system integrity

"Build human-ecological relations that establish and maintain the long-term integrity of socio-biophysical systems and protect the irreplaceable life support functions upon which human as well as ecological well-being depends." (Gibson et al., 2005)

Operating with minimal or no impact to the well-being of the biophysical environment is a noble goal worth striving for as the loss of natural attributes can lead to the deterioration of essential biological support systems and threaten the long-term well-being of human society. The integrity principle requires that action taken by an organization must go beyond reducing human-induced stresses on biophysical systems to redefining the human-biophysical relations that take place in ways that contribute to the well-being of biophysical and human social systems (Gibson, 2002; Gibson *et al.*, 2005).

The application of socio-ecological system integrity implies that decision-making should contribute to the well-being of human social systems and biophysical systems. As argued by Gibson *et al.* (2005), efforts need to be focused on reducing direct and indirect threats to system integrity which implies modifying human social systems such that their interrelationships with the biophysical systems are more compatible, sensitive and flexible.

In the context of a recreation/tourism destination, human social systems are referred to in the sustainable tourism literature as the tourism system (Gill, 1997; Holden, 2000) comprise of the activities taking place within the host community (Gill, 1997; Swarbrooke, 1999) such as those described in section 1.1.2. As such the Gibson principle of socio-ecological system integrity must be adapted such that socio-systems are understood in the context of a recreation/tourism destination.

Ski resorts, like many outdoor recreation/tourism destinations, rely on the quality of their surrounding ecological environment to prosper (Todd, 1994; United States Environmental Protection Agency, 2000; SACC, 2001) and depend heavily upon the host community to provide basic services

(McKercher, 1993; Welford and Ytterhus, 2004). Therefore, there is a vital economic justification for maintaining the integrity of the surrounding biophysical environment as well as the host community.

As part of redefined human-biophysical relations, the principle of ecological system integrity requires that society recognizes that quantitative growth is ultimately limited by the carrying capacity of the biophysical environment and the capacity of the host community to absorb guests without unacceptable negative effects being felt by the local residents (Williams and Gill, 1999). Here, Butler (1999)'s extensive review of the sustainable tourism literature revealed that there is acknowledgement amongst scholars that there are socio-ecological limitations to quantitative growth, and as such according to Tourism Concern (1992) and Bramwell *et al.* (1996), tourism destinations must operate within these limits. Consequently ski resorts must operate within these limits. Therefore, ski resort expansion must be bound by the carrying capacity of the biophysical environment and the host community. Bramwell *et al.* (1996) acknowledge the fact that the challenge of incomplete human understanding with respect to highly complex and dynamic systems makes it difficult, if not impossible, to set quantitative growth limits based on the carrying capacity of the biophysical environment and host community, but argue that it remains important to set them for management purposes.

Pursuing socio-ecological system integrity poses difficulties for implementation given the fragmented and primitive understanding humans have about how complex systems work (Robinson *et al.*, 1990). Hence it is important to have an approach to decision-making that recognizes the limitations of human knowledge and responds in a flexible and adaptive manner to change by using a diversity of innovative tools, methods and perspectives (Lister and Kay, 2000). This issue of uncertainty will be addressed more extensively within the discussion of the sustainability principle of precaution and adaptation.

In summary, the principle of socio-ecological system integrity recognizes that there are limitations to quantitative growth and prescribes that ski resorts go beyond reducing human induced stresses on biophysical systems by pursuing opportunities that contribute to, rather than detract from, the integrity of both the biophysical environment and the host community it is nested within, for the well-being of all ecosystems, residents, visitors and ski resort staff.

Livelihood Sufficiency and Opportunity

"Ensure that everyone and every community has enough for a decent life and opportunities to seek improvements in ways that do not compromise future generations' possibilities for sufficiency and opportunity." (Gibson et al., 2005)

Livelihood sufficiency and opportunity together as a sustainability principle holds promise in the context of seeking sufficient good for the greatest number. This means meeting economic and social needs for present and future generations. As Gibson *et al.* (2005) assert, the principle of livelihood sufficiency and opportunity addresses the need to extend beyond the protection of the biophysical environment to ensure the integrity of human systems. The core requirement of the principle of livelihood sufficiency and opportunity is that the basic wherewithal for the present generation is achieved and does not come at the expense of the well-being of the environment or future generations and as such, is interconnected with the sustainability principles of socio-ecological system integrity, intragenerational equity and intergenerational equity. For the purposes of simplicity, the principle of livelihood sufficiency and opportunity will be discussed below separately.

Livelihood Sufficiency

In affluent societies, where the level of material consumption is high, sufficiency as a sustainability principle advocates for a shift towards sustainable consumption patterns by requiring a decoupling of human well-being from growth in material consumption (Gibson *et al.*, 2005). This shift assumes that basic human needs are met and its focus is on curtailing over consumption. In the absence of such as shift, the gains made by firms to design products and services as efficiently as possible are frequently being offset by trends on the consumer side—population growth, higher standard of living and people's desires to consume products and services (Bartelmus, 1999; Hockerts, 1999; Stahel, 2001).

Interpretations of sufficiency in the context of affluent societies are found in publications by the World Business Council on Sustainable Development (2000), Schaltegger *et al.* (2003), and New American Dream (2006). The World Business Council on Sustainable Development (2000) describes sufficiency from a business' perspective as: "…about more quality and knowledge and less quantity and waste." While from an affluent consumer's perspective, Schaltegger *et al.* (2003) emphasize the need to shift towards consumption activities that result in: "…leisure, a sense of community and closeness to nature" and similarly, New American Dream (2006) describes this shift as: "…not about deprivation

but about getting more of what really matters—more time, more nature, more fairness, and more fun". Overall, a call for a shift towards more sustainable consumption patterns is found in each interpretation.

Sufficiency as a sustainability principle is often dismissed as being unrelated to business activities in terms of day-to-day operations and solely an issue of individual choice rather than a single firm's responsibility. Debate has emerged within the literature as to whether the promotion of sufficiency is a corporate responsibility (Young and Figge, 2004). The tension resides in the observation that many aspects of business focus on having more rather than on having enough (Schaltegger *et al.*, 2003). In addition, the promotion of sufficiency by business commonly provokes the imagery of a shrinking customer base (Young and Figge, 2004). However, if sustainability is to be achieved, new corporate strategies must focus on sufficiency. As articulated by Bartelmus (1999): "'Ecoefficiency' in production needs to be combined with 'sufficiency' in final consumption". The discussion to follow describes sufficiency as both a direct and indirect corporate responsibility in the context of a business and recreation/tourism destination.

Sufficiency as a direct corporate responsibility is called for by Stahel (2001) requiring businesses to: "…decouple corporate success from consumption". Here, a shift in mindset is required from quantity to quality development as articulated earlier by the World Business Council on Sustainable Development (2000). The shift requires a producer to sell the performance of high-quality products rather than selling low-quality, more disposable products. The shift from quantity to quality makes an important contribution to sustainability in slowing down material throughput (Belz, 1999; Stahel, 2001) and enables a producer to remain profitable by selling fewer products (Hockerts, 1999). In some circumstances, an additional shift can be made from producing 'goods' to delivering 'services' and is recognized as an important contribution to sustainability. Renting and leasing for example, are ways of prolonging the life of a product and making sure that used products are returned to the manufacturer (Belz, 1999).

Given a ski resort's position along the supply chain, as consumers rather than producers of products, ski resort operators can play a role here by ensuring that their purchasing decisions favour high-quality, eco-effective products as elaborated upon within the discussion of the sustainability principle of resource maintenance and efficiency. Ski resorts can consume without ownership through service options such as leasing, renting, sharing and pooling.

For a recreation/tourism destination, a shift in mindset from quantity to quality development implies the emphasis be placed on providing better service and quality experiences that are decoupled from further growth and consumption. This shift is advocated indirectly within the sustainable tourism literature through concerns raised by Mathieson and Wall (1982), Murphy (1985), McIntyre (1993) and Williams and Gill (1999) on the relationship between surpassing the socio-ecological carrying capacity

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of a recreation/tourism destination and the capability of the destination to provide quality experiences. Williams and Gill (1999) describe this relationship as: "…the maximum number of people who can use the site without unacceptable alteration in the biophysical environment and without an unacceptable decline in the quality of the visitor experiences." This description makes a compelling argument for setting limits to growth, as discussed previously within the context of the principle of socio-ecological integrity.

Sufficiency as an indirect corporate responsibility is called for by Dyllick and Hockerts (2002) requiring businesses to use the outlet of marketing and corporate advertisements as a mechanism of exerting influence on consumer behaviour and as Elkington (2001) asserts: "…creating preferences for products and services consistent with sustainability." Further, Elkington (2001) calls upon companies to: "…become educators rather than mere marketers of products."

Recreation/tourism destinations are uniquely positioned to be educators on more sustainable consumption patterns as they are in direct contact with their customers, unlike many other businesses. Tourism Concern (1992)'s sustainable tourism principle of marketing tourism responsibly emphasizes the importance of a tourism destination's role in empowering consumers to make informed choices. Here, tourism destinations have a responsibility to make guests aware of the need to respect the natural, social and cultural environment of the destination and to educate guests in advance of arrival on the environmental 'dos' and 'don'ts' (Tourism Concern, 1992). Here too, ski resorts have a role to play in creating preferences for more sustainable consumption through the direct contact they have with their guests. Similarly, linkages can be made between the guests' enjoyment of skiing as a recreational activity and climate change. As a winter recreation/tourism activity, skiing is seasonal in nature and vulnerable to the global issue of climate change. Without consistent, adequate snowfalls or supplementary snow making equipment, skiing cannot successfully generate income for ski resorts (Bürki *et al.*, 2003). Climate change threatens the viability of skiing and as such can serve to motivate ski resorts and skiers alike in taking action to address climate change in order to protect the long-term future of skiing as a recreation activity.

In summary, sufficiency calls for a shift towards more sustainable consumption patterns. Ski resorts have a direct responsibility to support sufficiency by decoupling improvements in quality and service from growth and consumption. Ski resorts have an indirect responsibility to support sufficiency by creating preferences amongst the skiing public for more sustainable consumption through education and marketing.

Opportunity

Opportunity as a sustainability principle requires that everyone has the opportunity to seek improvements in the quality of their lives in ways that do not compromise future generations' possibilities for opportunity (Gibson, 2002; Gibson *et al.,* 2005). By stating that everyone has the opportunity to seek improvements to their well-being, it inherently acknowledges the interconnections that exist between opportunity and intragenerational equity (i.e. equitable distribution of opportunities). As both a business and a recreation/tourism destination, ski resorts generate opportunity by adding value to the community within which they operate. In accordance with Wall (1993), sustainable tourism activities should enhance the capabilities of individuals and host communities to improve their quality of life. The paragraphs that follow examine the potential opportunities generated by ski resorts.

Ski resorts can generate opportunity by playing a significant role in local economic development. According to McIntrye (1993), ski resorts can bring about economic opportunity particularly in rural areas as a means of complementing agricultural employment which may be sporadic or insufficient. This is an important contribution that a ski resort can make as it can bring economic diversification, particularly for communities in economic decline.

Economic opportunity can be measured in the number of direct and indirect jobs that are created, streams of income and investment and further economic benefits can be measured through property sales and income taxes (Wall, 1993). Some of these sources of income can further the societal capital of the community. For instance as a business a ski resort can generate new sources of income through employment which can be used to support local community services, such as public transit, parks, public recreational programs and environmental protection.

Butler (1993) presents the idea that sustainable tourism should be defined within the context of the sustainability of other activities. This is important as it implies that the operation and development of a tourism destination and other activities are mutually dependent upon each other for sustainability. A tourism destination can play a positive role in supporting local economies by ensuring that investments made in tourism infrastructure are of a scale appropriate to the local conditions and benefit the wider host community interest (Tourism Concern, 1992). Local businesses should not be faced with unfair competition from larger, externally owned enterprises which have little commitment to the destination (Swarbrooke, 1999). Such efforts will support maximizing the retention of revenues within the local economy and prevent the disruption and displacement of local people (Tourism Concern, 1992).

Within its sphere of influence, a ski resort can contribute to community well-being rather than solely advance its individual wealth by encouraging new local businesses to supply complimentary goods and services (Kinsley, 1997). Supporting local income generation and local enterprises (i.e. retail

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shops, restaurants, artisans and other services) contributes to the creation of opportunities (Tourism Concern, 1992) by ensuring the retention and recirculation of wealth within a community (Kinsley, 1997; Swarbrooke, 1999). Overall, a sustainable ski resort does not compromise the sustainability of the local business community, but rather operates in a way that nurtures and makes the best use of local efforts and resources thereby maximizes the local retention of resources.

Lastly, as an employer, ski resorts can generate equal opportunity for their staff. Offering equal opportunities for staff to improve their education, contributes to their social and economic well-being and can also result in an increase in the quality of the tourism product itself (Tourism Concern, 1992; Swarbrooke, 1999). By giving priority to the recruitment of local personnel, the tourism destination can play a significant role in fostering opportunity (Tourism Concern, 1992).

In summary, ski resorts have a direct and indirect responsibility to support sufficiency in the qualitative dimension of human well-being and to foster opportunities for everyone to improve their quality of life. The principle of livelihood sufficiency and opportunity recognizes that ski resorts must: decouple improvements in quality and service from further growth and consumption; create preferences amongst the skiing public for more sustainable consumption through education and marketing; and, enhance the capabilities of individuals and host communities to improve the quality of their lives through investments that support the local economy and benefit the wider host community interest.

Equity: Intragenerational and Intergenerational

Equity emphasizes the avoidance of placing unfair burdens on any one individual or group. The intention behind pursuing equity is to achieve both social and ecological fairness amongst the needs of individuals and the needs of the broader society across space and time. Combined intragenerational equity and intergenerational equity involves accepting that the current generation should not leave a degraded environment for the next generation and recognition that equity within the present generation is a legitimate and necessary goal. Presented below are the two equity principles.

Intragenerational Equity

"Ensure that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc.) between the rich and poor."(Gibson et al., 2005)

As identified by Gibson *et al.* (2005), intragenerational equity calls for improvements in the following areas: material equality (i.e. basic material needs are met), political equality (i.e. power to participate effectively in decision making), gender equality and livelihood equality (i.e. health, valued

employment, respected knowledge and community security). Intragenerational equity ensures the avoidance of unhealthy gaps in human health, wealth, social recognition and political influence between all members of society. As such, there are several dimensions of intragenerational equity that can be applied to a ski resort and they are discussed below.

There is debate around the responsibilities that companies hold with respect to rectifying inequities. Companies may not be solely responsible for addressing all current global inequities, but they do have a role in creating and deepening the inequities that exist and therefore can contribute to improvements in equity. Tackled at the level of the firm, Welford (1997) argues that individual firms can pursue equity in two core primary ways: by empowering their workers through increased decision-making powers in the workplace and by sharing profits with the workforce. Ski resort owners and operators can start to apply the equity principle to the context of the workplace itself by considering questions concerning employee income and fairness such as: Are employees earning a living wage?; Are men and women being paid the same for the same work?; and Is it fair to expose workers or customers to toxins in the workplace or in the products/services sold? (McDonough and Braungart, 2002).

Further, if sustainability is to be achieved, an equitable solution must be found for the distribution of benefits and costs (i.e. economic and social) amongst the ski resort and the host community. Illustrative of the need for an equitable solution, is the concern raised by Swarbrooke (1999) that many local governments, via their taxpayers, fund the cost of local tourism-related infrastructure, resulting in many tourists paying less than the actual cost of their experience and in turn ski resorts paying less for the delivery of these experiences. Here, Swarbrooke (1999) calls for tourists to pay a fair price, rather than a price that is subsidized by the host community.

Arguments within the sustainable tourism literature support the assertion for arriving at an equitable distribution of costs and benefits. For instance, support exists for the Bruntland Report's definition of equity and fairness in terms of access to resources and their benefits (Tourism Concern, 1992; Bramwell *et al.*, 1996) and in particular, an equitable distribution of wealth amongst the economically disadvantaged sections of the host community (Swarbrooke, 1999). In general, ski resorts can contribute to community security by yielding an equitable share of economic and social benefits and costs to the host community as a whole. For a ski resort owner or operator, this means that decisions that affect the host community should be made with the intention to deliver net benefits to the whole community.

Sharpley (2000) argues that the concept of sustainable tourism development falls short within the context of equity when examining the local power arrangements that exist between all stakeholders. According to Pearce (1989), these relationships tend to favour the political or economic elite whereby

the benefits from tourism development are concentrated within the destination resort itself, thereby contributing to socioeconomic inequities. Despite these challenges, there are strategies available that will lead to successful outcomes that involve the sharing of resources and the sharing of power and control. Empowerment, regardless of the ecological or cultural context, is important to facilitate as it results in individuals and communities being able to build their own sustainable societies thus weakening the forces responsible for economic and social inequity. Such outcomes are illustrative of the interconnections between the sustainability principles of intragenerational equity and socio-ecological civility and democratic governance. These principles call for political equality—the power to participate effectively in decision making, and will be elaborated upon as part of the discussion on the sustainability principle of socio-ecological civility and democratic governance.

Another dimension of equity is revealed in *The Global Code of Ethics for Tourism*, endorsed by the United Nations Commission on Sustainable Development. The World Tourism Organization[11] developed ten principles for sustainable tourism (World Tourism Organization, 2001). Two of the principles— "Tourism as a vehicle for individual and collective fulfilment" and "Right to tourism"— provide further direction on how equity as a sustainability principle should be developed in the context of defining a ski resort as a sustainable recreation/tourism destination. Combined, these two principles raise the importance of broader socio-economic participation in and equitable access to recreation/tourism activities. Broader participation by various socio-economic classes in skiing is a worthwhile sustainability goal (Swarbrooke, 1999). Although not an immediate human need, recreation is a higher-level necessity amongst individuals and manifests itself as the need for leisure and peaceful enjoyment and as such is an important sustainability requirement (Brown *et al.,* 1987). In this context, the principle of equity calls upon ski resorts, as recreation/tourism destinations, to address the need for equitable access for one and all to pursue tranquility and fitness by providing opportunities for various socio-economic classes to participate in skiing.

In summary, the sustainable ski resort principle of intragenerational equity calls upon ski resorts to deliver valued employment, community security, and opportunities for tranquility and fitness in a manner that enables one and all to fulfill their potential. A key requirement to supporting this principle is ensuring that the wealth generated by the ski resort is distributed equitably with the host community rather than contributing to the polarized accumulation of wealth amongst the affluent.

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[11] The World Tourism Organization consists of members of government from 144 countries and territories as well as over 350 affiliate members from the public and private sector (World Tourism Organization, 2001).

Intergenerational Equity

"Favour present options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably." (Gibson et al., 2005)

Intergenerational equity as defined by Gibson *et al.* (2005) demands that careful attention be given to the potential future effects of decisions and that reflection be made on what choice future generations might prefer if they had a voice in the present. This type of equity stretches into the future and implies taking actions to protect the well-being of future generations.

Described as futurity by Bramwell (1998), the importance of intergenerational equity as a core sustainability principle is recognized amongst the sustainable tourism literature (Murphy, 1985; McIntyre, 1993; Wall, 1993; Bramwell *et al.*, 1996; Bramwell, 1998) and corporate sustainability literature (Gladwin *et al.*, 1995; Elkington, 1998; Dyllick and Hockerts, 2002; Newton, 2005). Debate arises in its interpretation and the moral obligations it places on current decision-makers to future generations (Thompson, 2003).

The future generations are defined by the corporate sustainability authors Wheeler and Sillanpää (1997), Elkington (1998) and Dyllick and Hockerts (2002) as a stakeholder group whereby businesses, in the spirit of sustainability, are obligated to meet the needs of current stakeholders without compromising the ability to meet the needs of future stakeholders. Here, competing objectives arise between the conventional focus businesses have on short-term profits and the moral obligations to future generations. The focus on short-term profits is contrary to the spirit of sustainability (Dyllick and Hockerts, 2002) which requires the equitable sharing of resources over a multi-generational time scale. Yet, as Newton (2005) stresses, it is important for businesses to prevent unwise actions that will cost them in the long-term.

Sustainable tourism authors Tourism Concern (1992), Butler (1993) and Lane (1994) argue that a sustainable recreation/tourism destination must focus on the future effects of decisions with the intention to ensure that the destination remains viable as a business over an indefinite period thus preserving a future revenue base. Again, this is contrary to traditional decision-making whereby inadequate attention is given to future implications (Gibson *et al.*, 2005).

Gibson *et al.* (2005) describe the application of intergenerational equity as an applied moral choice where the interests of the unrepresented, being unable to speak for themselves (Wheeler and Sillanpää, 1997; Newton, 2005), must be served by current generations determining what is fair for future generations. Newton (2005) refers to the concept of Seven Generations embraced by the Iroquois Nations as a way of reflecting upon what present choices seem good from the perspective of our descendents seven generations from now. Intergenerational equity requires an understanding of the

needs of future generations in order for businesses to act as Dyllick and Hockerts (2002) advocate: "…for the greater societal good." Based on the literature, Gibson *et al.* (2005) conclude that there are divergent views on what actions today might threaten or enhance future prospects. These divergent views are illustrative of the challenges posed by applying the principle of intergenerational equity in terms of the limited understanding of concerns of future generations.

In summary, a sustainable ski resort is morally obligated to make decisions with the needs of future stakeholders in mind, where the outcomes are most likely to preserve or enhance the opportunities of future generations to live sustainably while protecting the viability of the ski resort as a business over an indefinite period.

Resource maintenance and efficiency

"Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socio-ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit." (Gibson et al., 2005)

As a sustainability principle, resource maintenance and efficiency calls for reducing the level of an organization's consumption of materials, energy and water (Gibson *et al*., 2005). As a strategy on its own, resource reduction through efficiency does not address the limited capacity of the biophysical environment to generate resources (Gibson, 2002). For this reason, Gibson *et al.* (2005) extend the principle of efficiency to also include the concept of resource maintenance. The discussion below will consider how efficiency and resource maintenance contribute to sustainability.

The sustainability principle of efficiency is often referred to in the corporate sustainability literature as eco-efficiency. By definition, eco-efficiency is reached by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the earth's carrying capacity (World Business Council for Sustainable Development, 2000). The sustainable tourism literature also supports the benefits of eco-efficiency as a sustainability principle in its ability to reduce waste and use resources more efficiently (Tourism Concern, 1992; Wall, 1993; Williams and Budke, 1999). Arising from these interpretations of efficiency, there exists a debate in the literature that considers how and if efficiency contributes to sustainability.

Books such as *Ecology of Commerce* (1993), *Factor Four* (1997), and *Natural Capitalism* (1999) demonstrate that competitive advantage will be attained through dramatic increases in resource productivity. Due to the competitive benefits, the business community has embraced eco-efficiency as it is seen as having a double benefit, a win for both the environment and the bottom-line. In such cases,

efficiency strategies are harmonious with the dominant business model that relies on a conventional approach. Yet from an integrated systems approach, efficiency poses difficulties for sustainability in terms of net effects and equitable distribution of benefits.

Firstly, a debate exists around the issue of net effects—will efficiency gains save natural capital[12]? Several corporate sustainability authors argue 'no' based on the view that efficiency strategies are narrowly interpreted and are pursued in isolation of other sustainability objectives. As McDonough and Braungart (2002) point out, reduction through efficiency only slows down the consumption of resources. Hawken *et al*. (1999) and Senge (1999) argue that less use of resources per unit, coupled with increased production, will lead to a risk of further resource extraction. Here the view is that increases in income incurred through efficiency gains, would likely encourage re-investment in additional production. Hence, the net effect is an increase in the consumption of resources in a more efficient manner (Daly, 2002), thus failing to stop the increase of overall resource consumption.

In reflecting upon their experiences with the environmental redesign of products, Braungart *et al.* (2004) stipulate that efficiency must work towards closing material flows in order to contribute to sustainability. The act of closing material flows ensures that the availability of materials is maintained after use. Through the lens of an integrated systems approach, materials are elements in a continuous material flow system whereby eco-effective products or services are designed to become resources for the next generation (Braungart *et al.*, 2004). Eco-effectiveness relies on this approach which takes into account material composition so that all products and/or services are designed to be waste-free (Frankel, 1998). This supports the move by Gibson *et al.* (2005), to extend efficiency as a sustainability principle to include resource maintenance, by requiring firms to operate within absolute thresholds. Eco-effectiveness requires that firms use only natural resources that are consumed at a rate below natural reproduction, or at a rate below the development of substitutes (Dyllick and Hockerts, 2002).

Not only is it important for eco-effectiveness that products and services be designed as renewable resources, they also should be designed to contribute to the health of the biophysical environment. According to McDonough and Braungart (2002), corporate sustainability is not only about making do with less, it is about redesigning products and processes so that human industry becomes a source of nourishment rather than waste. Here eco-effectiveness implies the use of biological and technical nutrients, the first being useful to the biosphere and the later being useful to the systems of industrial processes (McDonough and Braungart, 2002). For instance, buildings that produce more energy than they consume, accrue and store solar energy, and purify their own waste

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[12] Natural capital consists of natural resources such as water, minerals, oil, trees, fish, soil and air as well as living biophysical systems that support life such as wetlands, tundras, estuaries and mountain terrain (Hawken *et al*., 1999).

water and release it slowly in a pure form are illustrative of eco-effectiveness (Laszlo, 2003). Another example suggests that when their useful life is over products do not become useless waste but can be tossed onto the ground to decompose and become food for plants and animals, rebuilding soil; or, alternatively, can return to industrial cycles to supply high quality raw materials for new products (Laszlo, 2003).

As mentioned previously, ski resorts rely on a network of suppliers to provide them with the necessary materials to deliver services to skiers and in some cases ski resorts have an opportunity to purchase eco-effective products and services from their suppliers. In addition, preference can be given to goods and services that are locally manufactured or purchased through local suppliers over imported goods and services. The literature refers to these actions as "greening the supply chain". Gilbert (2001) explains that greening the supply chain is the process of incorporating environmental criteria or concerns into organizational purchasing decisions and long-term relationships with suppliers. Action taken across the supply chain presents many opportunities to reduce waste, use resources more efficiently and close the 'loop' on material flows. A sustainable ski resort should be striving on a continual basis to reduce the quantitative throughput of natural resources across the life cycle chain of a ski resort in which materials, energy, water and human inputs and outputs flow.

Despite extending efficiency to include resource maintenance, there remains debate around the difficulties efficiency gains pose in terms of where the gains are invested. This debate is in light of the need to reverse the increasing polarization of wealth (comprised of natural and social capital)—an activity that is central to the achievement of sustainability (Gladwin *et al.,* 1995). If the gains made by efficiency continue to be reaped by affluent societies or individuals, then the gap between rich and poor will remain and economic and social inequity will continue to grow. Therefore efficiency must be pursued in a fashion that seeks overall efficiency gains and an equitable distribution of benefits. As stated by Gibson *et al.,* (2005): "…initiatives to reduce material and energy throughput will be beneficial only if designed and implemented within a more comprehensive package of approaches that seek overall gains and consider the distribution of benefits."

As Hertwich (2005) suggests, changes in consumption due to efficiency gains have the potential to make a positive contribution in sustainability terms. By ski resorts investing gains acquired through efficiency measures in areas that are deficient in natural and social capital, rather than in more production or consumption, the savings generate positive opportunities for sustainability.

In summary, rather than focusing on parts of a system where efficiencies can be made, the focus needs to be on the system as a whole to see where net benefits can be attained. When pursued concurrently with additional sustainability principles (i.e. socio-ecological system integrity, equity and sufficiency), resource maintenance and efficiency has a role to play in advancing towards

sustainability—ultimately preventing the increase in overall resource consumption. The principle of resource maintenance and efficiency directs ski resorts to reduce their net consumption of materials, energy, and water across the life cycle chain of a ski resort, close the 'loop' on material flows and invest efficiency gains in areas that are deficient in natural and social capital.

Socio-ecological civility and democratic governance

"Build the capacity, motivation and habitual inclination of individuals, communities and other collective decision making bodies to apply sustainability principles through more open and better informed deliberations, greater attention to fostering reciprocal awareness and collective responsibility, and more integrated use of administrative, market, customary, collective and personal decision making practices." (Gibson et al., 2005)

In general, the principle of socio-ecological civility and democratic governance instructs that decision-making power be distributed evenly throughout civil society through democratic governance. According to Gibson *et al.* (2005), democratic governance implies that decisions need to be made: "… in a more integrated way with more humility, more far-sightedness and more commitment to continuous improvement and adjustment." Further, this infers decision-making bodies apply the sustainability principles through more open and better informed discussions, mutual awareness and collective responsibility.

According to Doppelt (2003), a governance system shapes the way information is gathered and shared; the way decisions are made and enforced; and, the way resources and wealth are distributed. Organizations that demonstrate socio-ecological civility and democratic governance equitably share resources and wealth (Doppelt, 2003).

When a decision-making body, such as a business, applies the principle of socio-ecological civility and democratic governance, consideration must be given to defining the scope and generational scale of stakeholders involved. As introduced in section 1.1.3, the term 'stakeholder' is commonly used by both the corporate sustainability (Marsden and Andriof, 1998) and sustainable tourism literature (Gill, 1997; Bramwell et al., 1999; Swarbrooke; Perdue, 2004) when referring to those individuals or groups that are affected by, and affect, a company's activities.

A study by Robbins (2003) reveals that participative and collaborative decision-making with stakeholders is vital if organizations want to operate in a sustainable way. As stated by Doppelt (2003): "Sustainable governance systems involve in planning and decision-making all those affected by the organization, including employees from all units and functions as well as key stakeholders…". Strong stakeholder participation within the decision-making process of a business will increase democracy both within the workplace and within the larger society. In the context of corporate sustainability,

Welford (1997) argues that strong stakeholder participation is central to the democratic process as its outcome renders strong relationships between stakeholders within a business and with stakeholders external to the business. Further, the sustainable tourism literature strongly advocates for host community participation within the planning and development of the recreation/tourism destination (Wall, 1993; Butler, 1998; Swarbrooke, 1999; Bramwell and Lane, 2000), as its ideal outcome is described by Bramwell (1998) and Swarbrooke (1999) as socially equitable tourism.

Bramwell *et al.* (1999) identify education and empowerment as determining factors in enhancing or hindering the capacity of stakeholders to influence and participate effectively in decision-making. Both factors are discussed below in the context of what is required to achieve the ideal outcome envisioned by the sustainable ski resort principle of socio-ecological civility and democratic governance—well informed decisions that focus on the system as a whole to see where net benefits can be attained.

Decision-making bodies such as businesses have a responsibility to build capacity amongst stakeholders for effective decision-making by supporting measures that enhance continuous learning through education. Such measures require businesses to serve as educators (Welford, 1997) and recreation/tourism destinations to serve as education forums (Todd, 1994) on sustainability. Businesses also have the responsibility to engage their employees in the sustainability journey, as Nattrass and Altomare (1999) note that every employee makes decisions involving the flow of materials and energy. As such, Nattrass and Altomare (1999) and Doppelt (2003) advocate that business engage employees by reinforcing a culture of learning and by empowering employees to make changes. By strengthening the social and ecological awareness of staff, guests and host community residents, ski resorts can enlist support from these groups, and in doing so, the outcome of increased awareness may lead to actions that help ski resorts in meeting their sustainability objectives.

An understanding of power arrangements is important as power governs the capacity of stakeholders to influence and participate effectively in decision-making (Bramwell *et al.,* 1999). Effective stakeholder participation is the result of empowerment—the sharing of power and control amongst internal and external stakeholders. According to UNEP (2001), empowerment occurs when communities genuinely participate in the decision-making process. A sustainable recreation/tourism destination has an active partnership with the host community (Tourism Concern, 1992) thereby empowering the host community with a shared responsibility for the success of the recreation/tourism destination (UNEP, 2001). Further, the success of the recreation/tourism destination ultimately relies upon the shared responsibility for the well-being of both the human and biophysical system it is nested within. For instance, the planning and development of a sustainable recreation/tourism destination should: give a voice to those that are most affected by the activities of the destination; make well

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informed decisions based on local knowledge; and, reduce potential conflict between guests and the host community (Swarbrooke, 1999).

In summary, the sustainable ski resort principle of socio-ecological civility and democratic governance provides guidance about how to apply the sustainable ski resort principles in a manner that ensures that decisions are made in a more integrated way. A sustainable ski resort applies the sustainable ski resort principles through more open and better informed deliberations with the host community, by fostering social and ecological awareness and shared responsibility amongst internal and external stakeholders; and, using more integrative decision-making practices. A sustainable ski resort must honour the entitlement that internal and external stakeholders have to equal participation in the decision-making process.

Precaution and Adaptation

"Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise and manage for adaptation." *(Gibson et al., 2005)*

The principle of precaution and adaptation acknowledges the limited human understanding of socio-ecological systems given the dynamic nature and complexity of these systems. According to Gibson *et al.* (2005), uncertainties arise from complexity and create the conditions for surprises, making confident prediction about future outcomes impossible. Surprises are inevitable given that the knowledge of the systems we deal with is always incomplete (Holling, 1995). Given that surprises are inevitable, precaution and adaptation are necessary requirements for sustainability.

Precaution emphasizes the importance of avoiding environmental risk in the face of uncertainty. Bramwell (1998) identifies precaution as a core principle for sustainable tourism as it recognizes the need to be cautious where there is uncertainty about the consequences of a particular course of action. Precaution is preferred in cases where the limitations of human knowledge have been reached and involves the willingness to act on incomplete but suggestive evidence of significant risk to socio-ecological systems that are crucial for sustainability. Exercising precaution arises out of an ethical duty to take anticipatory action to prevent harm—where harm is described by Bramwell (1998) as: "…irreversible damage to natural resources and quality of life." As Welford (1997) describes, businesses can be well prepared by taking the following precautionary measures: "…ensuring actions are reversible, taking pre-emptive safeguards, increasing margins for error and undertaking contingency planning." Further, precaution requires that businesses be anticipative and adopt a long-term planning horizon (Welford, 1997).

For ski resort owners and operators, exercising precaution means being anticipative by pursuing diversity, flexibility and reversibility in decision making outcomes and adopting a long-term planning horizon. Being anticipative involves the willingness to act on incomplete but suggestive evidence of significant risk to socio-ecological systems that are crucial for sustainability. Here, actions are taken that err on the side of caution, and are reversible, to ensure the prevention of serious or irreparable damage to socio-ecological systems.   Being anticipative also involves decision making that embraces contingency planning, preventative safeguards, and increasing margins of error in light of unforeseen effects.

Further, O'Brien (2000) and Gibson *et al.* (2005) argue that deliberating and decision-making on issues of uncertainty should be a public exercise where the circumstances warrant. This requires a well informed citizenry. Here, rather than making a decision based on whether an activity or action is safe or has acceptable risk, the goal is to gather from many stakeholders information on the pros and cons of a broader range of options. This approach enables the interconnections within and between socio-ecological systems to remain, rather than parts of the system(s) to be acted on at the expense of the whole (O'Brien, 2000). This approach also allows for all sectors of society to participate and addresses the principle of socio-ecological civility and democratic governance.

Even with the appropriate use of precaution, there will still be circumstances where organizations cannot prevent anticipated problems or situations of surprise with unanticipated effects. Inevitably organizations will encounter surprises as actions taken in one area of a system can influence and ripple in unforeseen ways throughout a series of connected socio-ecological systems. Here, preferred options are those that anticipate surprise and are designed for adaptation (Gibson *et al.*, 2005). Decision-makers must learn to manage by change (i.e. adaptation) rather than simply to react to it (Holling, 1995).   In these circumstances the capacity for adaptation is required. The actions of learning, continuous monitoring and adjustment foster capacity for adaptation. These actions require investment in research and monitoring.

For ski resorts, adaptation means managing for unforeseen effects by research, monitoring, and making adjustments on a continual basis. Ongoing research and monitoring encourages a greater level of understanding of the impacts of particular activities (McIntyre, 1993; Butler, 1999). Monitoring also plays a crucial role in countering negative effects (Murphy, 1985; McIntyre, 1993). Tourism Concern (1992) advocate that the tourism industry should use wherever possible local expertise and experience to "…initiate, encourage and support research into methods for anticipating the impacts of tourism." Overall, this implies ski resort owners and operators need to invest in research and monitoring in order to acquire a greater understanding of the impacts of ski resorts on socio-ecological systems and enhance a ski resort's capacity for adaptation. With a greater understanding, ski resorts can respond by making

adjustments in light of negative effects, thereby ensuring improvement in practices and management of the ski resort over time.

In summary, as a sustainable ski resort principle, precaution and adaptation prescribes that ski resorts respect uncertainty, avoid risks of serious or irreversible damage to the foundations of sustainability, invest in research and monitoring for greater understanding, design for surprise, manage for adaptation and adopt a long-term planning horizon.

Immediate and long-term integration

"Attempt to meet all requirements for sustainability together as a set of interdependent parts, seeking mutually supportive benefits." (Gibson et al., 2005)

The eighth principle of sustainability is envisioned by Gibson *et al.* (2005) as the integration of all seven principles and requires a holistic perspective (i.e. systems perspective as discussed in section 3.1). The intention behind integration is not to assign equal weighting to each principle, but to make decisions that strengthen the whole. As Gibson *et al.* (2005) point out, the act of balancing leads to sacrifices rather than net gains and integration means avoiding the: "…balancing trap of continued incremental losses." For instance, gains in livelihood sufficiency and opportunity will deteriorate if the integrity of supporting socio-ecological systems is sacrificed. Therefore, when faced with tradeoffs, integration requires that a net overall gain must be achieved amongst the package of principles in order to progress towards sustainability.

Integration avoids a narrow focus on economic constraints, for example, it recognizes the intertwined importance of the principles and seeks opportunities to contribute to all of them. Decision-makers are often faced with pressures to prioritize economic considerations, often at the expense of the environment which they view as something that can be 'fixed' in the long term. This dilemma often results in a positive move in one area that fails to foster positive moves in other areas. As Doppelt (2003) explains, one of the key mistakes that organizations make is taking a 'silo' approach to sustainability, as compartmentalization perpetuates an organization's inability to identify all the ways in which its processes or products affect sustainability. Doppelt (2003) argues that this mistake is prominent in most organizations as: "Executives see sustainability as yet another special program and don't understand how it affects design, purchasing, production, and all other units." Ultimately, integration requires that businesses no longer treat sustainability as a special consideration, but an every day business consideration across all levels of decision-making and operations (Nattrass and Altomare, 1999). According to Welford (1997), sustainability must be addressed: "…in a systematic way, dealing

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with the company as a whole, rather than in a compartmentalized way and seeing the company as unavoidably interconnected with everything around it."

As Wall (1993) points out, sustainability principles are inherently interlinked and must be pursued in an integrated way for sustainability to thrive. That is why integration is of primary importance for sustainability, because without integration, net gains will not be attained. Hence integration requires that consideration of the interconnections between principles be as important as attention to the individual requirements behind each principle.

Therefore, the outcomes of decisions made at ski resorts must be evaluated in terms of their ability to address multiple sustainability challenges at the same time. Without an integrated approach to sustainability, ski resort owners and operators will fail to address ecological and human considerations as interrelated and from a whole systems perspective. In doing so, just as other businesses, ski resort owners and operators will continue to undertake piecemeal projects aimed at controlling or preventing pollution (Hart, 1997), rather than operating as a restorative force (Hawken, 1993).

In summary, the principle of immediate and long-term integration implies the application of all principles all at once, with the intention of seeking net gains amongst the principles rather than simply attempting to achieve a balance between them (Gibson, 2002; Gibson *et al.*, 2005). As a sustainable ski resort principle, immediate and long-term integration states that ski resort owners and operators must pursue conformance with the sustainable ski resort principles as a whole, rather than in a compartmentalized way, thus seeking opportunities to contribute to all of them by arriving at decisions that strengthen the whole.

3.3   Applying the Sustainable Ski Resort Principles

The adapted Gibson principles are summarized in table 3.3 and are herein referred to as the sustainable ski resort principles. The sustainable ski resort principles represent the key requirements needed for ski resorts to progress towards sustainability (i.e. idealized model of a sustainable ski resort) and provide guidance towards more sustainable outcomes at ski resorts. As illustrated in figure 3.6 below, ski resort owners and operators can seek to advance their ski resort along the sustainable ski resort continuum by using the sustainable ski resort principles to guide their decision-making.

Figure 3.6: Sustainable Ski Resort Continuum

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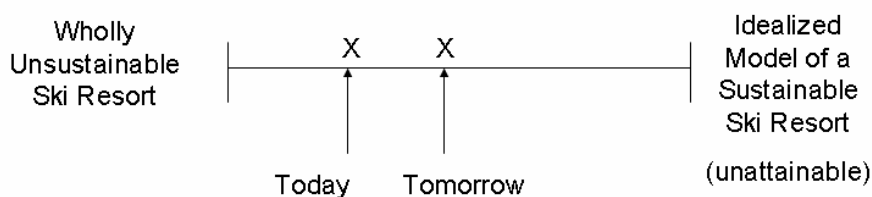
Now that the principles are adapted, consideration needs to be given in how they are applied. The literature endorses the broad application of the Gibson principles to both proposed and existing practices and to all levels of decision-making (Pope *et al*., 2004; Gibson *et al*., 2005; Gibson, 2006).

In reflecting upon how the Gibson principles can be applied in decision-making, Morrison-Saunders and Therivel (2006) attempt to illustrate the link between the decision questions asked, the assessment approach taken and the resulting level of opportunity for integration. Morrison-Saunders and Therivel (2006) conclude that what is being assessed depends upon what decision questions are asked, as "these questions can range from the 'most-strategic' (i.e. what should the future of this area be?) to the most 'site-specific' (i.e. is proposal x acceptable at site y?)." Morrison-Saunders and Therivel (2006) further conclude that thinking in a big-picture sense and posing a strategic-level question, rather than a proposal-specific question, maximises the opportunity for fully integrated and more sustainable decision-making outcomes.

The purpose of this thesis is to advance the debate beyond the current understanding of what constitutes a sustainable ski resort. For this purpose, the sustainable ski resort principles will be used in the 'most strategic' sense to assess the state of sustainability at BMR and the ski resort sector as a whole. In order to establish the contribution of the sustainable ski resort principles to the current understanding of what constitutes a sustainable ski resort, the principles will be applied as the idealized model of a sustainable ski resort. This work represents the first known attempt in the literature whereby the Gibson principles are applied using ideal type as the method for comparative study. Similarly in the case study, the principles will be applied in the 'most strategic' sense as a set of requirements that constitute the idealized model of a sustainable ski resort. The findings from this comparison will be used to answer the second thesis question— How does Blue Mountain Resort, as an exploratory case study, compare to the requirements of a sustainable ski resort?

As acknowledged in section 2.1.4, applying sustainability principles that are based on an integrated systems approach presents challenges. Nonetheless, Morrison-Saunders (2006) encourages sustainability practitioners to apply the Gibson principles within their own jurisdictions and to share their experiences with others on implementing the principles such that the practice of sustainability decision making grows. It is hoped that the findings from this thesis will serve to inform the on-going debate regarding the application of sustainability principles.

The sustainable ski resort principles are now carried forward into chapter 4 of this thesis. Chapter 4 uses the principles to determine where the current state of the sustainable ski resort discussion falls short of understanding what constitutes a sustainable ski resort from an integrated systems perspective. The findings of this ideal type analysis confirm the need to consider debates beyond what the current understanding is on what constitutes a sustainable ski resort

Table 3.3: Sustainable Ski Resort Principles

Gibson Principles	Sustainable Ski Resort Principles
Principle of socio-ecological system integrity: Build human-ecological relations that establish and maintain the long-term integrity of socio-biophysical systems and protect irreplaceable life support functions upon which human as well as ecological well-being depends.	The **principle of socio-ecological system integrity** recognizes that there are limitations to quantitative growth and prescribes that ski resorts go beyond reducing human induced stresses on biophysical systems by pursuing opportunities that contribute to, rather than detract from, the integrity of both the biophysical environment and the host community it is nested with for the well-being of all residing ecosystems, residents, visitors and ski resort staff.
Principle of livelihood sufficiency and opportunity: Ensure that everyone and every community has enough for a decent life and opportunities to seek improvements in ways that do not compromise future generations' possibilities for sufficiency and opportunity.	The **principle of livelihood sufficiency and opportunity** recognizes that ski resorts must decouple improvements in quality and service from further growth and consumption; create preferences amongst the skiing public for more sustainable consumption through education and marketing; and, enhance the capabilities of individuals and host communities to improve the quality of their lives through investments that support the local economy and benefit the wider host community interest.
Principle of intragenerational equity: Ensure that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc.) between the rich and the poor.	The **principle of intragenerational equity** calls upon ski resorts to deliver valued employment, community security, and opportunities for tranquility and fitness in a manner that enables one and all to fulfill their potential.
Principle of intergenerational equity: Favour present options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably.	The **principle of intergenerational equity** prescribes that ski resorts are morally obligated to make decisions with the needs of future stakeholders in mind, where the outcomes most likely preserve or enhance the opportunities of future generations to live sustainably while protecting the economic viability of the ski resort over an indefinite period.
Principle of resource maintenance and efficiency: Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socio-ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit.	The **principle of resource maintenance and efficiency** directs ski resorts to reduce their net consumption of materials, energy and water across the life cycle chain of a ski resort, close the 'loop' on material flows and invest efficiency gains in areas that are deficient in natural and social capital.
Principle of socio-ecological civility and democratic governance: Build the capacity, motivation and habitual inclination of individuals, communities and other collective decision making bodies to apply sustainability principles through more open and better informed deliberations, greater attention to fostering reciprocal awareness and collective responsibility, and more integrated use of administrative, market, customary, collective and personal decision making practices.	The **principle of socio-ecological civility and democratic governance** directs ski resorts to apply the sustainable ski resort principles through more open and better informed deliberations with host communities, by fostering social and ecological awareness and shared responsibility amongst internal and external stakeholders; and, using more integrative decision-making practices.
Principle of precaution and adaptation: Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise and manage for adaptation.	The **principle of precaution and adaptation** prescribes that ski resorts respect uncertainty, avoid risks of serious or irreversible damage to the foundations of sustainability, invest in research and monitoring for greater understanding, design for surprise, manage for adaptation and adopt a long-term planning horizon.
Principle of immediate and long-term integration: Attempt to meet all requirements for sustainability together as a set of interdependent parts, seeking mutually supportive benefits.	The **principle of immediate and long-term integration** states that ski resort owners and operators must pursue conformance with the sustainable ski resort principles as a whole, rather than in a compartmentalized way, thus seeking opportunities to contribute to all of them by arriving at decisions that strengthen the whole.

CHAPTER 4: CURRENT STATE OF THE SUSTAINABLE SKI RESORT

As introduced in chapter 3, the Gibson principles use an integrated systems framework and, as such, provide a lens through which to view what constitutes a sustainable ski resort. In chapter 3, the Gibson principles were adapted to the context of a ski resort by using them as an analytical framework for reviewing and incorporating insights from relevant literatures that discuss desirable characteristics of businesses and recreation/tourism destinations in sustainability terms. Emerging from this adaptation process are the sustainable ski resort principles, which represent the key requirements needed for ski resorts to progress toward sustainability.

The purpose of chapter 4 is to compare and contrast the present understanding of what constitutes a sustainable ski resort, as represented by key informant viewpoints and literature sources from academia, non-government organizations, governments and members of the ski resort industry, with the sustainable ski resort principles developed in chapter 3. The intention of this comparison is to demonstrate whether the proposed sustainable ski resort principles advance the debate beyond the existing understanding of what constitutes a sustainable ski resort.

The data collected and examined in this chapter primarily draw from the North American experience, and, where available, from Europe. Overall, the current state of the sustainable ski resort discussion tells us about the current approach to addressing the sustainability concerns facing ski resorts—one that is based on conventional approaches to decision-making.

The 'ideal type' analysis identifies the differences between the sustainability outcomes advocated by the current state of the sustainable ski resort discussion and the sustainability outcomes advocated by the sustainable ski resort principles. Insights from these differences are used to substantiate and strengthen the earlier arguments made in chapters 1 and 2 concerning the limitations of conventional approaches for understanding what a sustainable ski resort might look like. These insights add value to the debates on what constitutes a sustainable ski resort and thus make a significant contribution to the thesis. Overall, the findings of this chapter further support the argument for the sustainable ski resort principles to be based on an integrated systems approach to sustainability. Once demonstrated for their contribution to the sustainability debates, the sustainable ski resort principles developed in this thesis are applied in chapter 5 to an exploratory case study for the purpose of investigating how a ski resort compares to the idealized model of a sustainable ski resort. Overall, the application of the sustainable ski resort principles to an exploratory case study allows for the thesis to reflect upon the broader questions concerning the sustainability of ski resorts.

This three-part chapter first introduces the background on the sustainability outcomes advocated by the current understanding of sustainable ski resorts. Secondly, it conducts an ideal type

analysis between the current efforts to guide more sustainable outcomes at ski resorts and the sustainable ski resort principles as defined in Chapter 3. Finally, the chapter concludes with a summary of findings from the ideal type analysis. This analysis lends itself to making the determination on whether the current state of the sustainable ski resort discussion falls short of answering what constitutes a sustainable ski resort and if so, in what particular areas. It suggests that the current state of the sustainable ski resort discussion falls short of answering what constitutes a sustainable ski resort and as such fails to recognize where in fact sustainability lies, thus misguiding ski resorts. The findings from chapter 4 add value to the sustainability debates as they uncover insights on the understanding of an integrated systems approach to sustainability, thereby extending the debates beyond the conventional understanding of what constitutes a sustainable ski resort.

4.1   Background on Current Understanding of Sustainable Ski Resorts

As mentioned in section 2.1.6, this understanding of the current state of the sustainable ski resort discussion is derived from key informant viewpoints and literature sources from academia, non-government organizations, governments and members of the ski resort industry all serving to guide more sustainable outcomes at ski resorts. Combined, these information sources are meant to provide a window into the current state of the sustainable ski resort discussion and are introduced below.

The applied literature on sustainable ski resorts features documents from non-government organizations (i.e. industry watchdogs), governments and members of the ski resort industry on best practices (Hudson, 2000; Flagestad and Hope, 2001; Castle, 2004; Moore, 2005; SACC, 2006; NSAA, 2006a) and assessment frameworks (SACC, 2001; NSAA, 2006b). The assessment frameworks include the ski resort industry code of conduct (i.e. NSAA's Environmental Charter), and the ski resort industry watchdog's evaluation tool (i.e. SACC's Environmental Scorecard). The assessment frameworks in particular, were formed with the intention of guiding ski resorts towards achieving more sustainable outcomes and are elaborated upon below.

Created in June of 2000, the NSAA's[13] *Sustainable Slopes: the Environmental Charter for Ski Areas* contains a series of principles that serves as an industry commitment document and assessment framework on the 'greening' of North American ski resorts. The NSAA's Environmental Charter represented the first time the ski resort industry broadly acknowledged its environmental impact and pledged to take action (Schendler, 2003). The preamble of the NSAA's Environmental Charter states that the intent of the principles is to provide overall guidance for ski resort owners and operators in

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[13] The NSAA was established in 1962 as a trade association for ski area owners and operators and currently represents 326 alpine resorts that account for more than 90% of the skier/snowboarder visits in the United States and Canada (NSAA, 2006c).

achieving good environmental stewardship. The Charter provides a framework of 21 voluntary principles that cover three core areas: planning, design, and construction; ski resort operations; and, education and outreach (NSAA, 2000). The principles were created through the involvement and participation of a variety of stakeholders[14].

The NSAA released an updated Environmental Charter in January of 2006. The revised 2006 Charter contains updated 'options for getting there' that reflect the latest technologies and best management practices for ski resorts to follow as well as a Climate Change Policy adopted by the ski resort industry in 2002 (NSAA, 2006b). No significant changes were made to the NSAA principles themselves other than a few minor wording changes to a small portion of the 21 principles. The detailed list of the 2006 NSAA principles can be viewed in Appendix F.

Beginning in 2001, the NSAA has published the *Sustainable Slopes Annual Report*. In 2006, 180 ski resorts out of 326 or 55% of NSAA ski resort members, endorsed the Environmental Charter and 53 ski resorts voluntarily reported on their progress towards implementing the NSAA principles (NSAA, 2006a).

Created in 2001 in response to the NSAA's Environmental Charter, the Ski Area Citizens' Coalition (SACC) released its Environmental Scorecard. The Scorecard serves as an environmental report card for grading the environmental performance of ski resorts. The SACC, the main ski industry watchdog group, is managed through a steering committee which includes United States non-profit conservation organizations Colorado Wild, the Crystal Conservation Coalition, Lands Council, Environmental Resource Center, Friends of the Inyo, and the Sierra Nevada Alliance. SACC's Environmental Scorecard was motivated by the concern that many ski resorts are aggressively involved in real estate development rather than concentrating on the recreation needs of the public. As a coalition of six regional non-profit environmental organizations, the SACC volunteers and staff comprise of skiers, environmentalists and host community residents of ski resorts in the western United States.

Since 2001, the SACC has published the summary reports of the Environmental Scorecard, assigning letter grades to the environmental performances of ski resorts. As of 2006, the Environmental Scorecard had graded 77 ski resorts throughout the western United States on their environmental impacts based on the following issues: environmental management of ski areas expansion and real

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[14] Twelve organizations served as supporting partners in developing the Charter. These were: National Park Service Concession Program; 2002 Olympics Salt Lake City Organizing Committee; Colorado Department of Public Health & Environment; United States Department of Energy; Trust for Public Land; Conservation Law Foundation; United States Environmental Protection Agency; Leave No Trace; The Mountain Institute; The National Fish and Wildlife Foundation; Teton County, Wyoming; and the United States Forest Service (Malkan, 2000).

estate; snowmaking practices and their corresponding energy and water use; water quality protection; energy and water conservation efforts; public disclosure policies; wildlife protection practices; recycling and pollution prevention practices; landscape management; impact on wetlands and other environmentally sensitive areas; and, vehicle emissions reduction efforts (SACC, 2006).

The Environmental Scorecard data are obtained from public records from government agencies and from the resorts themselves (SACC, 2001). The Environmental Scorecard grades are based on third-party performance audits. The intent of the Scorecard is to encourage skiers to choose to visit those resorts that engage in environmentally sound practices such as the preservation of natural alpine environments and avoid visiting those resorts that are aggressively involved in real estate development at the expense of preserving the alpine environment that brings visitors in the first place. The detailed list of the SACC criteria can be viewed in Appendix G.

Adding to the applied literature, the academic literature on sustainable ski resorts can be traced back to assertions made by Todd and Williams (1996). As noted in chapter 1, Todd and Williams (1996) argued that if the ski resort industry is to take a lead in sustainability, the first step must involve developing a set of sustainability principles such that an ideal sustainability is envisioned for the purpose of providing guidance. When reviewing the academic literature on sustainable ski resorts, no scholars were found to have dedicated the primary focus of their investigation to examining what a sustainable ski resort should look like. Rather, the academic literature's understanding of an ideal sustainable ski resort is scattered across investigations where the primary focus is on: management systems (Todd and Williams, 1996; Eydal, 2004); best practices (Schendler 2003, 2005; Lewis, 2005); and, assessment frameworks (George, 2003, 2004; Rivera and deLeon, 2004, 2006). Further, the academic literature on sustainable ski resorts encompasses academic viewpoints from both North America (Todd and Williams, 1996; George, 2003, 2004; Rivera and deLeon, 2004, 2006; Schendler 2003, 2005) and Europe (Eydal, 2004; Lewis, 2005).

Lastly, the key informants chosen represent a diversity of perspectives about sustainable ski resorts, drawn from academia, environmental non-governmental organizations, governments, and the ski resort industry. Here, effort was made to identify the most knowledgeable interview candidates while maintaining a balance of stakeholders, and a variety of perspectives. As explained in chapter 2, the key informants were asked questions that prompted them to provide their understanding of what constitutes a sustainable ski resort. Whether it was in a North American or European context, specific to ski resorts or other recreation/tourism destinations, key informants reflected upon their experiences.

4.2   Ideal Type Analysis

Now that the current understanding of sustainable ski resorts has been introduced, the next step is to conduct an ideal type analysis. The purpose of the ideal type analysis is to reveal where the current understanding of sustainable ski resorts falls short of the sustainability requirements advocated by the sustainable ski resort principles developed in chapter 3. The findings of this analysis are intended to demonstrate that the sustainable ski resort principles advance the debate beyond the current understanding of what constitutes a sustainable ski resort and as such strengthen the argument that the sustainable ski resort principles be based on an integrated systems approach to sustainability.

The ideal type analysis compares and contrasts the sustainability requirements advocated by the current understanding of sustainable ski resorts with the requirements of each sustainable ski resort principle. The findings of the ideal type analysis are structured under the appropriate sustainable ski resort principle beginning with the principle of socio-ecological system integrity. Briefly, the individual requirements of each principle will be reiterated and carried forward to examine its presence amongst the current state of the sustainable ski resort discussion.

4.2.1   Socio-ecological System Integrity

As a sustainable ski resort principle, socio-ecological system integrity recognizes there are limitations to quantitative growth and defines a sustainable ski resort as one that preserves the integrity of both the biophysical environment and the host community it is nested with for the well-being of all residing ecosystems, residents, visitors and ski resort staff.

Ample evidence suggests there is a collective understanding that a sustainable ski resort must pursue opportunities that reduce human-induced stresses on biophysical systems (Todd and Williams, 1996; NSAA, 2000; NSAA, 2006b; SACC, 2001; Schendler, 2003, 2005; Eydal, 2004; Lewis, 2005). Interviews with representatives of the ski resort industry suggest an acknowledgement among ski resort owners and operators to act as stewards for the biophysical environment (ski resort industry representatives, personal interviews, January, 2007). On the other hand, no evidence can be found that suggests members of the industry believe that a sustainable ski resort must serve to strengthen the diversity and resilence of human and ecological systems as its primary objective before resolving to reduce or mitigate the human induced stresses. For instance, the NSAA principles lend guidance to ski resorts on avoiding or minimizing its stresses on ecosystems as evidenced through principles such as: "Avoid or minimize impacts to wetlands and riparian areas, and offset unavoidable impacts with restoration, creation or other mitigation techniques." and "Minimize impacts to fish and wildlife and their habitat and maintain or improve habitat where possible." (NSAA, 2006b). In both these NSAA

principles, the primary emphasis is on reducing human-induced stress rather than on pursuing opportunities to strengthen the diversity and resilience of human and ecological systems as required by the sustainable ski resort principle of socio-ecological system integrity.

Second, amongst the current state of the sustainable ski resort discussion, there exists a significant amount of opposing viewpoints concerning quantitative growth (i.e.: expansion of ski resort development activities), resulting in a lack of collective understanding. Much of the tension can be traced back to the criticism the NSAA principles have received from the failure to include sufficient guidance on the ideal form and limits of ski resort development.   The NSAA principles lend guidance on managing growth by stating that ski resorts: "Meet or exceed requirements to minimize impacts associated with ski area construction." and "Plan, site and design trails, on-mountain facilities and base area developments in a manner that respects the natural setting and avoids, to the extent practical, outstanding natural resources" (NSAA, 2006b). In other words, quantitative growth is acceptable provided the impacts can be managed in a responsible way. Clearly, the NSAA principles advocate the accommodation of expanding ski resort activities through measures that minimize or mitigate impacts— falling well short of understanding that there are limits to quantitative growth.

The Ski Area Citizens' Coalition, has expressed publicly that the NSAA principles: "…do not include any meaningful environmental protections; do not set any goals to protect wildlife habitat; do not protect undeveloped roadless areas; do not protect old growth forests in and around ski areas…" (Malkan, 2000). Ben Doon from the Colorado Wild Organization and Research Director of SACC feels the NSAA principles missed the big picture by ignoring all the issues of development and expansions as quoted in George (2004). For instance, the NSAA principles do not put any restrictions on secondary development (i.e. condos, golf courses retail malls, etc.) (Glidden, 2000; Malkan, 2000).

Conversely, the SACC criteria provide guidance to ski resorts on the importance of operating within the limits of the ecosystems that they are embedded within by setting an absolute limit for ski resort expansion. This is expressed through the criteria, "Maintaining Ski Terrain Within the Existing Footprint", which sets the minimal ecological standard that ski resort expansion is not be undertaken on currently undisturbed land (SACC, 2001). By providing such a standard, the criteria are explicit on what activities would and would not meet the criteria.

Third, the current understanding of sustainable ski resorts falls short of advocating for the preservation of human systems integrity. As identified by Eydal (2004), the closest the current state of the sustainable ski resort discussion comes to providing guidance in this area is the identification of growth problems that detract from the well-being of host communities, indicating that the interrelations between ski resorts and their host community need to be redefined. As part of redefined relations, the principle of socio-ecological system integrity recognizes that growth is ultimately limited by not only

the carrying capacity of the biophysical environment, but the carrying capacity of the host community to absorb guests without detracting from the well-being of the host community. The current understanding of sustainable ski resorts fails to provide guidance on the interrelations between ski resorts and their host community such that ski resorts contribute to, rather than detract from, the well-being of the host community.

In conclusion, there are differences between the sustainability requirements with respect to the well-being of human and ecological systems amongst the current state of the sustainable ski resort discussion and the sustainable ski resort principle of socio-ecological system integrity. These differences rest in the guidance provided concerning what the interactions between ski resorts and the socio-ecological systems should achieve and the ideal form and limits of ski resort development activities.

4.2.2   *Livelihood Sufficiency and Opportunity*

The sustainable ski resort principle of livelihood sufficiency and opportunity recognizes that ski resorts are part of society and must operate by enhancing the integrity of the host community. In order for a ski resort to conform to the sustainable ski resort principle of livelihood sufficiency and opportunity, there are three key requirements it must fulfill. First, a shift in mindset is required from quantity to quality development whereby a sustainable ski resort provides better service and quality experiences that are decoupled from further growth and consumption. Second, within its sphere of influence (i.e. education and marketing), a sustainable ski resort must create preferences amongst the skiing public for more sustainable consumption. Third, a sustainable ski resort must create opportunities for the host community and individuals to improve the quality of their lives through investments that support the local economy and benefit the wider host-community interests.

Current understandings fall short of requiring that ski resorts decouple improvements in quality and service from further growth and consumption. For a ski resort, the delivery of improvements in quality and service plays an important role in a guest receiving a valued experience (ski resort industry and consultant representatives, personal interviews, January, 2007). Guests visit ski resorts and participate in ski resort activities as a way of escaping from everyday responsibilities—in general, their mindset is on relaxing, indulging and on seeking new experiences (ski resort industry representative, personal interview, January, 2007). In response, a ski resort's mindset is on fulfilling and exceeding the experiences of the guest—the primary source of a ski resort's profit (Schendler, 2003). As such, there is a need not to create an image of 'scrimping' as this would contribute to a perception of decreased service, as found by both Schendler (2003) and Williams and Budke (1999). Consequently, as

presented in the previous section, quantitative growth is acceptable provided impacts can be managed in a responsible way (NSAA, 2006b).

Second, many analysts have touched upon how ski resorts might enhance the overall experience of their guests while at the same time pursuing the resort's sustainability objectives (Todd and Williams, 1996; Schendler, 2003; Eydal, 2004; Lewis, 2005). These scholars advocate that ski resorts enlist the help of their guests in pursuing their sustainability objectives through activities that impart information intended to influence a guest's consumption decisions while at the resort as well as at home. Despite these assertions, there remains debate as to whether educating guests about measures they can take to adopt a more sustainable lifestyle, ski resorts capitalize on an opportunity to enhance guest experiences (i.e. differentiate and build loyalty) or threaten to jeopardize a relaxing holiday experience (Lewis, 2005).

On the other hand, while guests are seeking an escape from their everyday responsibilities, they also desire a pleasant environment in which to visit (Todd, 1994; Holden, 2000; United States Environmental Protection Agency, 2000; Lewis, 2005). It is through this avenue that Lewis (2005) concludes ski resorts can influence their guests' consumption behaviours by communicating the linkages between the guests' enjoyment of the outdoors to their behaviours in the resort and at home. For instance, NSAA's Keep Winter Cool campaign communicates linkages between the guests' enjoyment of skiing as a recreational activity and the need for skiers to adopt more sustainable consumption behaviours that reduce the greenhouse gas emissions responsible for climate change (NSAA, 2006b). Interestingly, interviews with some members of the ski resort industry revealed a sense of reluctance to acknowledge climate change as a significant sustainability challenge as their livelihood is highly dependent upon a stable and favourable climate for skiing and other outdoor ski resort activities (ski resort industry representatives, personal interviews, January, 2007). For instance, if a strong message is conveyed that climate change is affecting the quality of skiing, it is feared that guests would no longer teach the next generation to ski or make further investments in the activity (ski resort industry representative, personal interview, January, 2007)

A sustainable ski resort can play a role in stimulating opportunities for local members of the business community. Castle (2004) suggests a ski resort should design its services at the base of the hill in a manner that complements, or at the very least does not directly compete with the local business community. Further, as part of creating opportunity, local members of the business community should be given priority for available retail and restaurant spaces at the base of the ski hill as a way of providing authenticity and community involvement (Castle, 2004). This will stimulate income generation opportunities for local enterprises. Also, lodging development that occurs in the presence of existing dwellings with a multiplicity of developers gives rise to a range of accommodation types

offered which broadens the base of what the ski resort attracts in terms of several different classes of visitor (Hudson, 2000).

The relations between the ski resort and the local business community described above are reflected in the community model as characterized by Flagestad and Hope (2001) where the destination comprises of specialized business units with no dominant ownership. Ski resorts that resemble the organizational structure presented in the community model have merits for greater ecological and social sustainability (Flagestad and Hope, 2001) and will be discussed further under the principle of socio-ecological civility and democratic governance.

The evidence presented above suggests that the current understanding of sustainable ski resorts does acknowledge the tension that exists between the need for ski resorts to provide high quality experiences while at the same time consume fewer materials and resources. Missing from the current state of the sustainable ski resort discussion is the call to decouple improvements in quality and service from further growth and consumption. Further, there is some evidence that suggests that the current state of the sustainable ski resort discussion acknowledges that the ski resort services be provided in ways that stimulate rather than hinder opportunities for the local business community.

4.2.3   Intragenerational Equity

The sustainable ski resort principle of intragenerational equity calls upon ski resorts to deliver valued employment, community security, and opportunities for tranquility and fitness in a manner that enables one and all to fulfill their potential.

Ski resorts can provide valued employment by providing an equitable share of benefits with employees. A significant amount of discussion exists amongst the academic literature regarding the need to provide affordable housing for ski resort employees (Gill, 1991; Gill, 1997; Gill and Williams, 1994; Laing, 1998; Schendler, 2005) and that ski resorts have a corporate responsibility to ensure that employees are provided with affordable housing (Moore, 2005). By focusing on the symptom (i.e. lack of affordable employee housing), rather than the root cause (i.e. low wages), the current state of the sustainable ski resort discussion falls short of requiring ski resorts to provide an equitable share of benefits with employees.

Ski resorts can contribute to community security by yielding an equitable share of economic and social benefits and costs to the host community as a whole. Yet, notable by its absence, in both the literature and the interviews, is the notion that a sustainable ski resort should yield an equitable share of net benefits with the host community.

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Lastly, ski resorts can provide equal opportunities for tranquility and fitness by encouraging broader socio-economic participation in recreation/tourism activities such as skiing. Hudson (2000) suggests that a wide range of accommodation types be offered in order to broaden the base of what the ski resort attracts in terms of several different economic classes of visitor. No further evidence suggesting that ski resorts must provide goods and services that are accessible to various income levels was found.

In summary, the current state of sustainable ski resort discussion does not call upon ski resorts to contribute to the reduction in gaps in sufficiency and opportunity based on socio-economic status within the workplace and the host community.

4.2.4 *Intergenerational Equity*

The principle of intergenerational equity prescribes that ski resorts are ethically obligated to make decisions with the needs of future stakeholders in mind, where the outcomes most likely preserve or enhance the opportunities of future generations to live sustainably while protecting the economic viability of the ski resort over an indefinite period. Conforming to this principle requires that careful attention be given to the potential future effects of decisions made at ski resort, thus making it necessary to reflect upon what choice future generations might prefer if they had a voice in the present.

There is acknowledgement in the literature and amongst those interviewed about the importance of pursuing sustainability for the benefit of future generations.   For instance, the mission statement within the NSAA's Environmental Charter states: "We are committed to improving environmental performance in all aspects of our operations and managing our areas to allow for their continued enjoyment by future generations" (NSAA, 2006b). Similarly, within Aspen Skiing Company's annual report on sustainability, the president acknowledges the moral responsibility of ski resorts to pursue sustainability as inaction has implications for future generations (Aspen Skiing Company, 2006). Interviews with representatives of the ski resort industry, moreover, have acknowledged the ethical responsibility of resort owners and operators to act as stewards for the biophysical environment (ski resort industry representatives, personal interviews, January, 2007).

What appears to be missing from documents and interviews is the linkage between the acknowledgement of pursuing sustainability for the benefit of future generations and the guidance on operating within a multigenerational time scale where interests of future generations are represented as factors in decision-making.

4.2.5   Resource Maintenance and Efficiency

In order for a ski resort to become sustainable, it must pursue opportunities to reduce waste and use resources more efficiently. Given that reduction through efficiency only slows resource consumption processes down, the sustainable ski resort principle of resource maintenance and efficiency directs ski resorts to reduce their net consumption of materials, energy, and water across the life cycle chain of a ski resort, close the 'loop' on material flows and invest efficiency gains in areas that are deficient in natural and social capital.

Out of all the sustainable ski resort principles, the principle of resource maintenance and efficiency was the most embraced amongst the current understanding of sustainable ski resorts. Its presence is evident across both examined assessment frameworks as well as the academic literature on sustainable ski resorts.

The NSAA principles and the SACC criteria emphasize the importance of ski resorts achieving efficiencies in terms of resource and material consumption. For instance, the word 'efficiency' appeared six times within the NSAA principles with respect to the efficient use of energy, water and materials (NSAA, 2006b). Similarly, the SACC criteria of: "Promoting and Implementing Recycling, and Water, Land, and Energy Conservation Strategies" provides guidance on efficiency and resource conservation strategies (SACC, 2001).

Further, there is some evidence within the literature that acknowledges that sustainable ski resorts must reduce the consumption of energy, water and materials and across the life cycle chain of a ski resort as evidenced in efforts made to take a broader view on the circle of influence that ski resorts have both through their supply chains and through their customers. Todd and Williams (1996) observed that some ski resorts are encouraging more sustainable practices amongst their suppliers. The NSAA principles on education and outreach acknowledge the role of ski resorts in encouraging their guests to undertake efficiency measures (NSAA, 2006b) as do Todd and Williams (1996); Schendler (2003); Eydal (2004); and, Lewis (2005).

Despite the solid understanding of efficiency and the acknowledged need to pursue it across the life cycle of a ski resort, there is no evidence to suggest that there exists an understanding of the shortfalls of efficiency in terms of net effects and equitable distribution of benefits.

Firstly, scattered amongst the NSAA principles and SACC criteria are references regarding the need to purchase products with greener attributes such as 'recyclable', 'efficient', 'non-hazardous', 'compostable' as well as the need to purchase cleaner energy.   What is missing from both the NSAA principles and SACC criteria was a well defined principle that articulated the need to achieve a 'net'

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reduction in the consumption of materials and resources through the selection of eco-effective products and services.

Secondly, both the NSAA principles and the SACC criteria emphasize the importance of water and energy efficiency measures as well as the importance of conservation strategies, yet both frameworks fail to provide guidance on where the gains attained from implementing these measures should be invested. The sustainable ski resort principle of resource maintenance and efficiency on the other hand encourages ski resorts to redistribute the gains acquired through efficiency measures by investing in areas that are deficient in natural and social capital with the overall goal to seek an equitable distribution of benefits.

When contrasted with the sustainable ski resort principle of resource maintenance and efficiency, the current understanding of what constitutes a sustainable ski resort does not acknowledge the shortfalls of efficiency and as such fails to advocate for the reduction in net consumption of materials and resources as well as fails to seek an equitable distribution of efficiency gains.

4.2.6 *Socio-ecological Civility and Democratic Governance*

The sustainable ski resort principle of socio-ecological civility and democratic governance directs ski resorts to apply the sustainable ski resort principles through more open and better informed deliberations with host communities, by fostering social and ecological awareness and shared responsibility amongst internal and external stakeholders. Overall a sustainable ski resort makes decisions with its stakeholders in more integrative ways that demonstrate respect for ecology, social efficiency and equity by focusing on the system as a whole to see where net benefits can be attained.

If a ski resort wants to operate in a sustainable way, it must embrace participative and collaborative decision making with both its internal and external stakeholders. The research conducted by Flagestad and Hope (2001), Eydal (2004) and Lewis (2005) suggests that stakeholder involvement and collaboration plays a key role in a ski resort's journey towards sustainability.

Flagestad and Hope (2001)'s corporate and community models lend understanding to the power arrangements that underlie two distinct organizational structures of mountain destination development. The authors suggest that the community model holds promise for greater ecological and social sustainability as its organizational structure comprises of multiple service providers operating in a decentralized way, where no individual service provider has any dominant ownership within the destination. The community model described by Flagestad and Hope (2001) promotes stronger stakeholder co-operation and collaboration and reinforces the argument that these qualities create the capacity for greater ecological and social sustainability. Examples of the community model in North

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America are identified by Clifford (2002) as nonprofit ski resorts that are in some form locally owned by their community and offer affordable skiing. Conversely, the corporate model described by Flagstad and Hope (2001) promotes less stakeholder co-operation and collaboration as the destination is dominated by a single business corporate has control over how the destination is operated and consequently holds strong political power in the host community. While Flagstad and Hope (2001)'s work indicates that public ownership (i.e. community model) holds promise for greater ecological and social sustainability over private ownership (i.e. corporate model), organizational structure alone does not determine the sustainability of a ski resort, nor is it a clear indicator of stakeholder co-operation and collaboration. Regardless of ownership type, the qualities of strong stakeholder co-operation and collaboration are crucial requirements for a sustainable ski resort.

Outside of the discussion on organizational structure, Eydal (2004) and Lewis (2005) discuss the importance of stakeholder involvement and collaboration in a more general way as core requirements for more sustainable decision-making. Eydal (2004) argues that stakeholder collaboration is critical to avoiding potential conflicts with stakeholder groups as well as enlisting the support for operation and planning of the ski resort. Similarly, Lewis (2005) suggests that using multi-stakeholder approaches encourage partnership and collaboration. To a lesser extent, the NSAA principles that serve to guide the planning, design and construction aspects of a ski resort, raise the importance of partnerships with stakeholders. For instance, the principle "Explore partnerships with land conservation organizations and other stakeholders that can help protect open lands and local view sheds" only requires the ski resort to 'explore' partnerships rather than a more stringent requirement such as 'establish partnerships'.

Further, there is little evidence amongst the literature suggesting the need for ski resorts to make decisions with its stakeholders in more integrative ways by focusing on the system as a whole to see where net benefits can be attained. Here, only Eydal (2004) acknowledges that decision-making on sustainability must be addressed in a systematic and integrated way, but fails to elaborate upon what this would look like.

In light of the sustainable ski resort principle of socio-ecological civility and democratic governance, the current understanding of what constitutes a sustainable ski resort does acknowledge the importance of stakeholder involvement and collaboration however, the need for ski resorts to share decision-making power amongst internal and external stakeholders as well as adopt integrated decision-making practices are not widely discussed as a desired goals amongst the current state of the sustainable ski resort discussion.

4.2.7   Precaution and Adaptation

Given the complex and dynamic nature of human and biophysical systems, precaution and adaptation are necessary requirements for pursuing sustainability. The sustainable ski resort principle of precaution and adaptation prescribes that ski resorts respect uncertainty, avoid risks of serious or irreversible damage to the foundations of sustainability, invest in research and monitoring for greater understanding, design for surprise, manage for adaptation and adopt a long-term planning horizon.

No specific calls for precaution and adaptation were made within the NSAA principles or the SACC criteria. There were references made to monitoring, by both the NSAA principles and the SACC criteria, indicating an acknowledgement that monitoring enhances the decision making capacity of ski resorts.

Amongst other sources of sustainable ski resort literature, the calls for precaution and adaptation are found dispersed across various contexts. For instance, the climate change studies of Bürki *et al*. (2003) and Scott *et al.* (2003, 2006), among others, call upon ski resorts to adapt to the impacts of changing climatic conditions. In fact researchers such as Scott *et al.* (2003, 2006) have presented possible adaptation strategies that range from investing in snowmaking technologies to diversifying into non-snow related activities in the winter. As noted by Scott *et al.* (2006), virtually all ski resorts in Ontario have snowmaking systems that cover 100% of their skiable terrain, thereby reducing their vulnerability to climate change. Schendler (2005) calls for sustainable ski resorts to have a climate change strategy, comprising of a plan for what to do when climate change impacts their resort businesses. A similar call is made by Scott *et al.* (2006), whom recommend that sustainable ski resorts address their vulnerability to climate change within their business plan, as investors are increasingly likely to request that businesses report on their vulnerability to climate change.

More generally speaking, Eydal (2004) calls for decision-making at ski resorts to be flexible and subject to continuous improvement whereby feedback processes are in place to improve upon lessons learned and corrective action is taken in cases where there is a failure to achieve an intended outcome. Further, Eydal (2004) notes the importance of ski resorts acquiring greater understanding of the impacts of ski resort operations on environmental and social processes as it relates to the carrying capacity of the host community and the biophysical environment it is nested within.

It is apparent that the current state of the sustainable ski resort discussion contains fragments in support of the principle of precaution and adaptation across various sources. Yet, no individual source contains a full comprehensive understanding of the sustainable ski resort principle of precaution and adaptation.

4.2.8   Immediate and Long-term Integration

The sustainable ski resort principle of immediate and long-term integration states that ski resort owners and operators must pursue net gains amongst the sustainable ski resort principles as a whole, rather than in a compartmentalized way, thus seeking opportunities to contribute to all of them by arriving at decisions that strengthen the whole.   In doing so, consideration is given to the interconnections between the sustainable ski resort principles to be as important as attention to the individual requirements behind each principle.

As represented by the examined frameworks, literature on sustainable ski resorts and interviews with key informants, the current understanding of what constitutes a sustainable ski resort is based on a conventional approach to sustainability. This approach is most evident in the examined frameworks as both are comprised of criteria that advocate for minimizing the impacts of ski resort operations on the biophysical environment in isolation from other sustainability problems ski resorts face. The NSAA principles and SACC criteria also overlook providing guidance to ski resorts on seeking net benefits amongst competing economic, social and environmental objectives. This approach perpetuates the view that sustainability challenges are detached and therefore detached responses are pursued rather than responses that recognize the linkages and interdependencies between sustainability challenges where in fact sustainability lies. Despite the fact that some ski resorts are attempting to adhere to these frameworks, it is clear that even if they should meet the requirements of these frameworks, they will still come up short with meeting the requirements of the sustainable ski resort principles—the idealized model of a sustainable ski resort.

The calls for integration amongst the academic literature on sustainable ski resorts are limited to brief reference made by Eydal (2004) that decision making on sustainability must be addressed in a systematic and integrated way.   The current assessment frameworks (i.e. NSAA's Environmental Charter and SACC's Environmental Scorecard) fail to capture linkages and interdependencies that exist between a ski resort and the biophysical and societal systems they are nested within.

4.3 Summary of Findings from the Ideal Type Analysis

As referenced in chapter 3, the sustainable ski resort principles are based on an integrated systems approach to sustainability. Table 4.4 summarizes the insights acquired through the current state of the sustainable ski resort discussion that were used in the ideal type analysis to compare against the sustainable ski resort principles.

Table 4.4: Summary of Comparison between the Sustainable Ski Resort Principles and the Current Understanding of Sustainable Ski Resorts

Sustainable Ski Resort Principles	Insights Acquired through the Current State of the Sustainable Ski Resort Discussion
Socio-ecological system integrity	• Ski resorts need to pursue opportunities that reduce human-induced stresses on biophysical systems (Todd and Williams, 1996; NSAA, 2000; NSAA, 2006b; SACC, 2001; Schendler, 2003, 2005; Eydal, 2004; Lewis, 2005) • Quantitative growth is acceptable provided measures are taken to minimize or mitigate impacts (NSAA, 2006b) • A limit must be set on quantitative growth (SACC, 2001)
Livelihood sufficiency and opportunity	• Pursue education measures intended to influence a guest's consumption decisions while at the ski resort as well as at home (Todd and Williams, 1996; Schendler, 2003; Eydal, 2004; Lewis, 2005; NSAA, 2006b) • Debate on whether education measures will enhance the overall experience of guests or threaten to jeopardize a positive relaxing holiday experience (Lewis, 2005) • Ski resort services should be provided in ways that do not compete directly with the local business community and in fact stimulate opportunities for local income generation (Hudson, 2000; Castle, 2004)
Intragenerational equity	• Ski resorts have a responsibility to ensure that employees are provided with affordable housing (Moore, 2005) • Ski resorts should offer a wide range of accommodation in order to serve different economic classes of visitor (Hudson, 2000)
Intergenerational equity	• There is acknowledgement from the ski resort industry to take action on sustainability in order to allow for skiing to be enjoyed by future generations (NSAA, 2006a) as well as an acknowledgement of the moral responsibility to take action for the well-being of future generations (Aspen Skiing Company, 2006).
Resource maintenance and efficiency	• Use energy, water and materials in an efficient manner (SACC, 2001; NSAA, 2006b) • Reduce the consumption of energy, water and materials across the life cycle chain using influence with suppliers (Todd and Williams, 1996) and customers (Todd and Williams, 1996; Schendler, 2003; Eydal, 2004; Lewis, 2005; NSAA, 2006b)
Socio-ecological civility and democratic governance	• Stakeholder involvement and collaboration plays a key role in a ski resort's journey towards sustainability (Flagestad and Hope, 2001; Eydal, 2004; Lewis, 2005) • Decision-making on sustainability must be addressed in a systematic and integrated way (Eydal, 2004) • Ski resorts should explore partnerships with stakeholders (NSAA, 2006b)
Precaution and adaptation	• Research is important to understanding the (environmental and social processes) social and environmental carrying capacity related to the ski resort's operations (Eydal, 2004) • Decision-making is to be flexible and subject to continuous improvement whereby feedback processes are in place to improve upon lessons learned and corrective action is taken where there is failure to achieve an intended outcome (Eydal, 2004) • The need to adapt to changing climatic conditions is stressed as important (Scott *et al.*, 2003, 2006; Bürki *et al.*, 2003)
Immediate and long-term integration	• Decision-making on sustainability must be addressed in a systematic and integrated way (Eydal, 2004)

The ideal type analysis reveals similarities and differences between the sustainability outcomes advocated by the current state of the sustainable ski resort discussion and the sustainability outcomes

advocated by the sustainable ski resort principles. For the purpose of this thesis, only the differences will be highlighted below, as these differences demonstrate the extent to which the current state of the sustainable ski resort discussion falls short of answering what constitutes a sustainable ski resort. The conventional approach to sustainability, as represented by the current understanding of sustainable ski resorts, has fallen short of adequately defining a sustainable ski resort specifically in the areas of:

- pursuing opportunities to strengthen the diversity of human and ecological systems;
- setting limits to quantitative growth;
- decoupling improvements in quality and service from further growth and consumption;
- contributing to the reduction in gaps in sufficiency and opportunity based on socio-economic status within the workplace and the host community;
- providing guidance on operating within a multigenerational time scale where the interests of future generations are represented as factors in decision-making;
- advocating for the reduction in net consumption of materials and resources;
- investing savings from efficiency measures in ways that do not expand demands for materials and resources leading to impacts elsewhere;
- sharing decision-making power amongst internal and external stakeholders; and,
- viewing the linkages and interdependencies between sustainability challenges and seeking opportunities to arrive at decisions that strengthen the whole.

The findings from the ideal type analysis confirm that the sustainable ski resort principles, developed using an integrated systems approach to sustainability, advance the debate beyond the current understanding of what constitutes a sustainable ski resort. In addition, the gaps identified within the current understanding of what constitutes a sustainable ski resort do, in general, provide some insights into the state of sustainability at ski resorts. For instance, if a ski resort were to pursue all or many of the sustainability outcomes advocated by the current understanding of sustainable ski resorts, it would fall short of some of the requirements of the idealized model of a sustainable ski resort as articulated by the sustainable ski resort principles.

The sustainable ski resort principles are now carried forward into chapter 5—the case study. Here, the principles serve as standards that are used to assess the state of sustainability at BMR. The principles are compared against the current conditions and trends at BMR using evidence collected from three information collection techniques (i.e. primary + secondary literature review, participant observation and interviews). The evidence collected is intended to represent the current conditions and trends at BMR and is sorted into the particular sustainability principles deemed appropriate by the researcher.

CHAPTER 5: CASE STUDY – BLUE MOUNTAIN RESORT LIMITED

The sustainable ski resort principles developed in chapter 3 are now applied to an exploratory case study to investigate how a ski resort compares to the idealized model of a sustainable ski resort. Blue Mountain Resort (BMR) is used as an exploratory case study.

The purpose of the exploratory case study is to conduct an ideal type analysis between the current conditions and trends at BMR and the ideal state as expressed by the sustainable ski resort principles developed in this research. The sustainable ski resort principles are useful when applied to specific cases such as BMR, for their application reveals how each case compares to the idealized model of a sustainable ski resort. As stated in chapter 1 of this thesis, the application of the sustainable ski resort principles serves to distinguish between sustainable outcomes and unsustainable outcomes at ski resorts and ultimately assesses the state of sustainability at ski resorts. The application of the sustainable ski resort principles is not intended to measure the progress that has been made towards sustainability. Measuring progress towards sustainability suggests a longitudinal study which is beyond the scope of this thesis. Such a study would consider data from at least two separate time periods based on established indicators against which progress towards sustainability can be measured.

The first section of this chapter sets the context of the case study by describing the study area. The description includes the history of BMR's development in the Town of the Blue Mountains, Ontario from when skiing first began in the region to BMR's evolution into a year-round resort.

The second section of this chapter compares the individual requirements of the sustainable ski resort principles against the current conditions and trends at BMR. The application of the requirements to BMR calls for integration, however for ease of presentation the findings of the ideal type analysis will be organized separately under each sustainable ski resort principle as was done in chapter 4. The analysis will identify if and how the requirements are present, where they are not, and the degree to which they are integrated.

Overall, the requirements play an important role in assessing the state of sustainability at BMR and will provide a sense about the state of sustainability in the ski resort sector as a whole. Upon further reflection, the thesis considers within chapter 6, what opportunities might be pursued or what obstacles need to be overcome for BMR, and possibly for other ski resorts, to move closer to the idealized model of a sustainable ski resort.

In short, the ideal type analysis from chapter 5 serves to answer the second thesis question— How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?

5.1 Description of Blue Mountain Resort

BMR operates as a four-season resort that is known primarily for its skiing opportunities. During the winter season, the majority of the over 1.5 million visitors travel from Southern Ontario and the surrounding northern United States participate in alpine skiing at BMR (BMR, 2007). On average, the ski resort's alpine ski season begins in early December and concludes in early April (BMR, 2007). The ski resort has 251 acres of skiable terrain with an uphill ski lift capacity of 21 690 skiers per hour (BMR, 2007). The winter facilities consist of: 34 ski/snowboarding trails (28 of which are open to night skiing), 4 terrain parks, serviced by 13 ski lifts and a snowtubing park (BMR, 2007).

BMR is situated on the Blue Mountains of the Niagara Escarpment along the southern shore of Georgian Bay in the Province of Ontario (see figure 5.7). The Niagara Escarpment, a UNESCO (United Nations Educational, Scientific and Cultural Organization) World Biosphere Reserve, is a geological outcropping exposed during the last glacial period (Niagara Escarpment Commission, 2006).

Figure 5.7: Map of BMR within Ontario
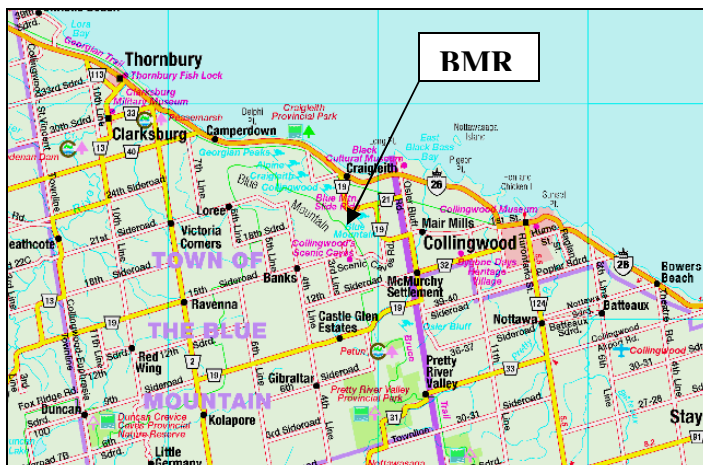
(Source: MapArt 2000)

"The Blue Mountains" is the colloquial name for the area along the escarpment whose length is approximately 15 kilometres, from the Georgian Peaks southeast to the Pretty River Valley. The highest elevation in this area is over 500 metres above sea level, with the maximum continuous vertical drop being 245 metres (Niagara Escarpment Commission, 2006).

BMR is nested within the host community of several municipalities and counties and as such falls under the jurisdiction of multiple local authorities. While BMR resides within the municipality of the Town of the Blue Mountains[15] and Grey County, the larger established community is the nearby

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[15] Town of the Blue Mountains is the official name of the municipality in northeastern Grey County in which Blue Mountain Resort is located. Prior to its formation in 1998, it was two separate municipalities, the Town of

Town of Collingwood, located 5 kilometres away in the County of Simcoe (see figure 5.8). The major population centre of Toronto is 135 kilometres away. For the purposes of this report, the host community will be considered to consist of the Town of the Blue Mountains and the Town of Collingwood as depicted in figure 5.8. As noted by Sewell (2003), the current municipal boundary between the Town of Collingwood and the Town of the Blue Mountains artificially divides the activities on the ski slopes from the activities of the host community. This is further substantiated by Curto (2006) who found agreement among residents that the municipal boundaries do not represent the wider social, economic and environmental relationships within the region.

Figure 5.8: Distance between Collingwood and Blue Mountain Village
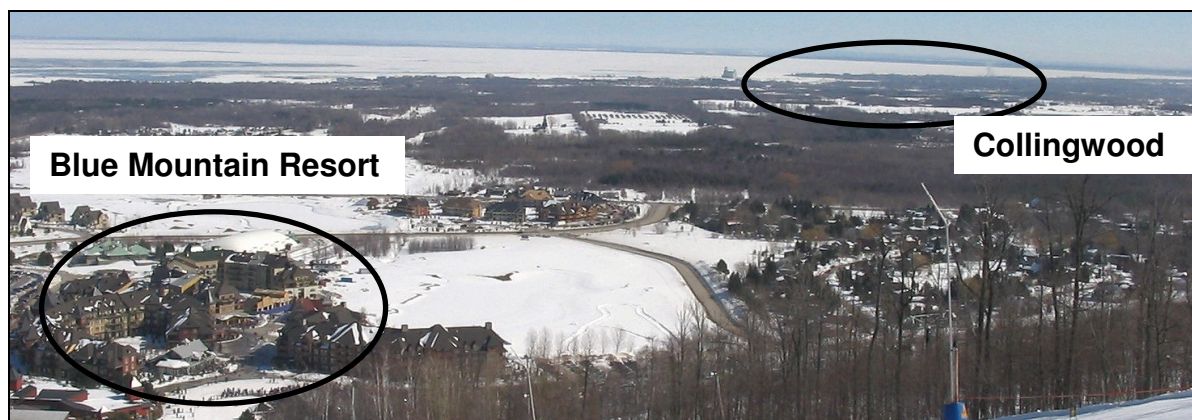
(Source: Hakala, 2004)

The host community's economy has historically been based on manufacturing and agriculture. Though the latter half of the 20th century, however, the economic base has increasingly shifted and tourism is now a major component of the local economy and the social fabric of the community (Wilkinson and Murray, 1991). In 2003, 61% of full-time and 95% of part-time employees were working in the service/tourism industry in the host community (Centre for Business and Economic Development and Human Resources Development Canada, 2003). Contributing to this equation, BMR's non-unionized environment employs 450 full time year round employees, and 1 700 winter and 150 summer seasonal employees (BMR, 2007).

Thornbury and the Township of Collingwood. The Township of Collingwood had no affiliation with the Town of Collingwood directly to the east.

Figure 5.9: Regional Map
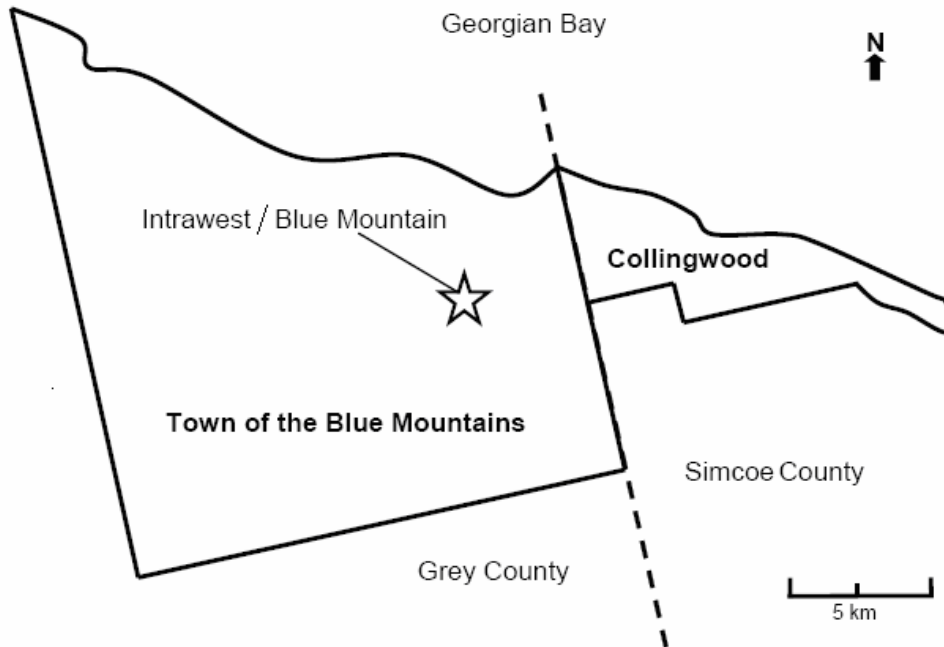
(Source: Adapted from the Ontario Ministry of Municipal Affairs and Housing, 2005)

5.1.1 *The Beginnings of Blue Mountain Resort*

The first skiing on the escarpment occurred in the early 1930s on what is now the southern part of BMR (Weider, 1990). In 1941, BMR was founded by Austrian immigrant, Jozo Weider (Weider, 1990). Over the years, he developed the ski resort and its amenities, but skiing did not add much to the host community's economic base until the 1960s (Sewell, 2000) when the mass market began to develop for skiing in Ontario as family incomes were on the rise (BMR, 2003). The higher incomes afforded people the disposable income to spend on leisure. To meet increased demand, the 1960s brought an era of expansion with the construction of chairlifts and the 20 room Blue Mountain Inn, followed by the investment in a snowmaking system in 1973 (Weider, 1990).

The production of man-made snow justified the construction of expensive lift, hill grooming and base-lodge facilities as the snow making capabilities virtually guaranteed continuous skiing from December to March. BMR now has the largest snowmaking system in Canada (12 000 gallons per minute or 1 foot acre of snow per 16 minutes) with the ability to produce full capacity at all temperatures below -5 degrees Celsius (BMR, 2003). The water for this snowmaking system is fed by a 3 kilometre pipeline from Georgian Bay (BMR, 2003).

The next significant evolution of BMR was marked by the opening of the first major summer attraction in 1977— the Great Slide Ride (Weider, 1990). Further diversification followed in the 1980s, as BMR added a year round four star resort hotel and conference centre, a condominium development and the Monterra Golf Course (Weider, 1990). In 1985, former Township of Collingwood Council and the Ontario Municipal Board approved Official Plan Amendments and Zoning by-law Amendments enabling BMR to proceed with plans to develop a resort village (BMR, 2003). The resort village was constructed when the Intrawest Corporation became involved.

5.1.2   Blue Mountain Resort's Partnership with Intrawest

In 1999, BMR announced that their family-owned company had entered into an agreement to sell a 50% interest to the Intrawest Corporation (Sheppard and Johnson, 2002). Headquartered in Vancouver, Intrawest is a public company known for its real estate developments at major ski resorts, such as the base of Whistler Blackcomb Mountain in Whistler, BC and similarly, the base of Mont Tremblant in Quebec. With the agreement, BMR continues to run the day-to-day operations of the resort (i.e. facilities, guest services, ski hill, golf course and summer recreation facilities). As part of a separate transaction, Intrawest purchased 100% of a 32-acre parcel of developable real estate at the base of BMR's ski hill (Sheppard and Johnson, 2002). This transaction led the way to the planned development of a slope-side village (see figure 5.10 below) which includes 1 000 condo-hotel units, 200-town home units and 100 000 square feet of commercial space (Sheppard and Johnson, 2002). The real estate component of Intrawest's business model starts with the establishment of a resort village which is designed to generate a real estate boom, where development occurs in stages and each stage creates more demand for future development and consequently localized inflation of real estate values (Intrawest Corporation, 2005).

The Intrawest partnership has solidified BMR's position in the ski resort industry as a four-season resort. Gordon Canning, president and chief executive officer of BMR, had this to say about the BMR-Intrawest partnership: "Our business plan called for continued capital investments to maintain our growth. We are no longer just a ski hill—Blue Mountain is a four season resort with golfing, waterslides, tennis, beach and meeting facilities. We felt that to capitalize on the opportunities we needed a strategic partner that could help provide financing and management expertise. Overall, we expect a $585 million investment to develop an authentic Victorian style Ontario village at the Blue Mountain."(as quoted in Sheppard and Johnson, 2002).

Figure 5.10: Blue Mountain Village

(Source: Hakala, 2004)

BMR's evolution best fits the corporate model of mountain destination development as defined by Flagestad and Hope (2001) where BMR, in partnership with Intrawest, controls a critical mass of service providers, thereby enhancing its ability to deliver better performance in customer satisfaction in a more coordinated way than if there were multiple independent service providers.   On the other hand, by definition and by law, a corporation's first loyalty and primary obligation is to its shareholders as is the case with the BMR-Intrawest partnership. Based strictly on this notion, therefore, allegiance is to the bottom line, not necessarily the sustainability of the surrounding environment or host community. That said, with BMR's evolution have come sustainability challenges—the focal point of the remaining part of this section.

It was anticipated that the development proposed by the BMR-Intrawest partnership would lead to both benefits and costs—resulting in tradeoffs. The Town of the Blue Mountains in particular viewed the development as generating a substantial benefit in terms of new property tax revenue and a substantial cost in terms of the increased demand on municipal services (i.e. roads, sewage treatment, child care services). As one civic leader in Grey County articulated: "We look forward to it (the development). But there are certainly a lot of benefits. But the infrastructure that goes along with it is one of our biggest challenges." (as quoted in Algie, 2001).

Upon the emergence of the BMR-Intrawest partnership, significant concern was expressed by members of the host community, as this partnership was viewed as a catalyst for accelerated growth in the host community (Adams, 2000a). Shortly following the announcement of the partnership, the

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Mayor of the Town of Collingwood, Terry Geddes, created the Vision 2020 committee to examine the impacts of growth on the host community (Adams, 2006b). In 2000, the Vision 2020 committee published *Blueprint Collingwood*, a compendium of more than 200 recommendations on what the Town of Collingwood should look like in 20 years (Vision 2020 Committee and The Town of Collingwood, 2000). The visioning document covered issues of concern such as housing, transportation and the environment among others (Vision 2020 Committee and The Town of Collingwood, 2000).

In part, the concerns that emerged from the Town of Collingwood are a result of the fact that the development activities at BMR fall within the municipal jurisdiction of the Town of the Blue Mountains. The spin-off issues related to BMR's development (i.e. housing shortage, increasing demand on local infrastructure and commercial competitiveness) however, have major ramifications for the Town of Collingwood. Consequently, the municipal boundary inhibits the Town of Collingwood's ability to obtain direct tax revenues from BMR's activities to address the spin-off issues related to BMR's growth.

Since the emergence of the BMR-Intrawest partnership, the host community has become more desirable for visitors. For instance, prior to BMR's partnership with Intrawest, the ski resort was attracting 380 000 visitors in 1999 during the winter season (Russell, 1999). Since that time, the number of visitors during the winter season has grown from 600 000 visitors in 2003 (BMR, 2003) to over 1.5 million visitors in 2006 (BMR, 2007).

Hakala (2004) and Curto (2006) have conducted studies concerning the accelerated growth in the host community and have found a trend of increasing negative impacts on the well-being of the host community that have manifested themselves in several ways, most notably in an affordable housing shortage, increased traffic congestion, increased demand on municipal infrastructure and rising property taxes. Both Hakala (2004) and Curto (2006) point to the BMR-Intrawest partnership as the driving force behind the accelerated growth experienced in the host community and many believe that the rate of growth within the host community is unmanageable and that limits to future growth are desirable. This view is consistent with what Gill (2000) found when studying tourism growth in Whistler, BC, where the majority of residents in that host community believed that there should be limits to growth and that their quality of life would deteriorate if development continued at the current rate.

Now that the context and some of the sustainability challenges of the case study has been described, the proceeding section compares the requirements of the sustainable ski resort principles against the current conditions and trends at BMR.

5.2   Ideal Type Analysis

The next step in this analysis is the application of the sustainable ski resort principles to BMR. The sustainable ski resort principles represent the ideal type and their requirements when applied, distinguish between sustainable outcomes and unsustainable outcomes, thereby assessing the state of sustainability at BMR. As stated earlier, no real-life organization aligns perfectly with the ideal type (Neuman, 2003). Despite the impossibility of matching the ideal type, the application of the principles serves to identify how the current conditions and trends at BMR compare against the idealized model of a sustainable ski resort.

It should also be mentioned that although it is beyond the scope of this thesis to conduct multiple case studies using ideal type analysis, a comparative review of the literature on sustainable ski resorts, secondary documents and interviews, would suggest that BMR is in some ways is a leader in sustainability among ski resorts. A general indication of how BMR compares to other ski resorts will be provided within the ideal type analysis where there is substantive evidence to support such an indication.

The current conditions and trends at BMR are informed by: the commitments BMR has made in its sustainability vision and polices; the frameworks BMR uses to guide decision-making toward more sustainable outcomes; the plans and programs it has established to address sustainability issues; and, the insights revealed from interviews with key informants and participant observation.

The process of conducting ideal type analysis rests on viewing the current conditions and trends at BMR through the lens of the sustainable ski resort principles.   The analysis examines the evidence and determines whether the requirements are fully present, absent or partially realized as defined in table 5.5.

Table 5.5: Existence of Sustainable Ski Resort Requirements

Existence of Sustainable Ski Resort Requirements:	Meaning:
• Fully present	• Current conditions mirror the sustainable ski resort requirements.
• Absent	• Evidence suggests the sustainable ski resort requirements are absent.
• Partially realized	• Evidence suggests the current conditions and trends support some of the sustainable ski resort requirements.

Overall, the analysis presented below will begin to answer the second thesis question—How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?

5.2.1   Socio-ecological System Integrity

Socio-ecological system integrity recognizes there are limitations to quantitative growth and defines a sustainable ski resort as one that goes beyond reducing human induced stresses on biophysical systems by pursuing opportunities that contribute to, rather than detract from, the integrity of both the biophysical environment and the host community it is nested with for the well-being of all residing ecosystems, residents, visitors and ski resort staff.

For BMR to fully embrace the sustainable ski resort principle of socio-ecological system integrity, there are two key requirements that must be met. First, BMR must serve as a 'restorative' force by contributing to the well-being of all residing ecosystems, residents, visitors and ski resort staff. Second, BMR must demonstrate a commitment to setting and adhering to a limit on quantitative growth. Ultimately, these requirements preserve the integrity of the systems in which a ski resort is embedded within.

As demonstrated below, evidence suggests that BMR contributes to programs on an ad hoc basis that serve to strengthen the social fabric of the host community and the well being of the biophysical environment. For instance, BMR has a Managed Forest Plan (BMR, 2004b). The plan requires BMR to selectively thin forest areas to open the canopy and improve the overall health of the stands (BMR, 2004b). Under the plan BMR has also installed and maintains a trail of nest boxes for bluebirds[16]—these nest boxes are believed to have played a major role in bringing bluebirds back to many areas both locally and regionally.

While BMR has made a commendable effort to protect and strengthen the local ecosystem, this measure appears to be taken in isolation of decisions regarding the future expansion of the ski resort. For instance, illustrated within the 2005-2006 BMR ski trail map are 251 acres of skiable terrain and an additional 50 acres that is presently labeled as 'future development' (BMR, 2007). Given this observation, one can conclude that BMR has no intention on setting and adhering to a limit on quantitative growth.

In terms of enhancing the social fabric of the host community, further piecemeal efforts are found. For instance, the charitable foundation, *The Village of Blue Mountain Foundation* was established by BMR to serve as a mechanism for giving back to the community (community non-

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[16] Bluebird populations have recovered since the 1980s when population numbers were so low that the Committee on the Status of Endangered Wildlife in Canada listed them as vulnerable (BMR, 2004b).

government representative, personal interview, March, 2007). Here one-time donations are given out on a case-by-case basis and there is no apparent intent on funding community initiatives over a sustained period.

As shown above, in the absence of a comprehensive strategy, BMR contributes to programs that serve as a 'restorative force' on a piecemeal basis and as such the *requirements of the principle of socio-ecological system integrity are partly met*. However, the current conditions and trends at BMR suggest rapid quantitative growth in addition to plans for future growth and as such suggest that a more comprehensive level of commitment is required in order for BMR to preserve the integrity of BMR's supporting socio-ecological systems.

5.2.2   *Livelihood Sufficiency and Opportunity*

The sustainable ski resort principle of livelihood sufficiency and opportunity recognizes that ski resorts have a direct and indirect responsibility to support sufficiency in the qualitative dimension of human well-being and to foster opportunities for everyone to improve their quality of life. In order for BMR to conform to the sustainable ski resort principle of livelihood sufficiency and opportunity, there are three key requirements it must fulfill.

First, what must be determined is whether BMR contributes to the provision of better service and quality experiences that are decoupled from further growth and consumption. There is no evidence to suggest that BMR's present practices aimed at enhancing service and quality experiences are decoupled from further growth and consumption. In fact quite the opposite is true. At BMR, many guests are paying for luxury and comfort that is typical for resorts of BMR's calibre and as such BMR is careful not to create an image of 'scrimping' as this would contribute to a perception of decreased service (former ski resort industry representative, personal interview, January, 2007). This behavior is common among ski resorts and other businesses within the hospitality industry, in particular those that provide luxury experiences (Schendler, 2003).

Second, a determination must be made as to whether BMR exerts its influence amongst the skiing public through education and marketing to create preferences for more sustainable consumption. BMR has become an advocate for reducing the impacts of climate change by educating guests about measures they can take to reduce their greenhouse gas emissions through the NSAA's Keep Winter Cool campaign. Amongst Ontario ski resorts, BMR is a leader in this area, having been the first and only ski resort to participate in the Keep Winter Cool campaign since its inception in 2003 (ski resort industry representative, personal interview, February, 2007)—and only recently accompanied by four other Ontario ski resorts in 2007 (participant observation, March, 2007).   In 2006, BMR's Green Team

expanded the Keep Winter Cool campaign beyond the boundaries of the ski resort by developing and delivering a workshop to local grade 5 students at three schools (ski resort industry representative, personal interview, August, 2006). The 90 minute workshop engaged the students in various hands-on activities on what they could do in their everyday lives to reduce their greenhouse gas emissions (ski resort industry representative, personal interview, August, 2006).

Third, the sustainable ski resort principle of livelihood sufficiency and opportunity requires that BMR operate in a manner that enhances the capabilities of individuals and host communities to improve the quality of their lives through investments that support the local economy and benefit the wider host community interest. Studies reveal that BMR's partnership with Intrawest has contributed to the significant growth in employment opportunities, many of which are service jobs that are low-paying and part-time (Hakala, 2004; Curto, 2006). This is not unique to the ski resort industry as Mathieson and Wall (1982) and Bramwell *et al.* (1996) found that much of the employment opportunities in the tourism industry are low-skilled, low-paid and seasonal.

According to the Georgian Triangle Housing Resource Centre (2007), many high paying manufacturing jobs in the host community have been replaced by seasonal, part-time, lower paying jobs. This shift in employment configuration (i.e. increasing numbers of low end wage earners) generates a greater demand on social services to bridge the gap and poses long-term implications for the well being of the host community. As quoted in the local newspaper, the Collingwood Labour Council President Murray Doupe stated: "All of the problems we're facing with infrastructure, old sewers, all of that it's going to come down to the taxpayer to pay for these things and if we don't have good paying jobs, we're in trouble. Tourism jobs are welcome, but they are low paying." (Holden, 2006).

The requirements of the principle of livelihood sufficiency and opportunity are partially realized through BMR's demonstrated leadership as an advocate for the reduction of greenhouse gas emissions through awareness and outreach campaigns. Despite this, BMR has not adequately sustained an effort to contribute to the reduction in gaps in sufficiency and opportunity both within the workplace and the host community.

5.2.3   *Intragenerational Equity*

Intragenerational equity calls upon ski resorts to contribute to improvements in equity that close the gap between all members of society in terms of human health, wealth and social recognition and political influence. This principle is intertwined with socio-ecological civility and democratic governance, as both sustainable ski resort principles call for political equality whereby individuals and host communities are empowered to build their own sustainable societies thus weakening the forces

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responsible for intragenerational inequity. For BMR to be a sustainable ski resort it must conform to the principle of intragenerational equity on three fronts.

First, BMR must provide equal opportunities for individuals to fulfill their potential through valued employment which renders an equitable sharing of benefits in the workplace. As discussed under the principle of livelihood sufficiency and opportunity, the low end wages provided to BMR seasonal staff have brought into question whether BMR is obligated to provide its employees with sufficient resources to support those employees to reside within the host community. For instance, there have been calls amongst the host community for BMR to invest in affordable housing for their staff rather than host community taxpayers incurring the costs associated with addressing this issue. As articulated in this exert from a letter written by a Collingwood taxpayer to the editor of the local newspaper (Enterprise-Bulletin): "Why should Intrawest, its tenants, the private ski clubs and the rest of our thriving service industry be encouraged to continue paying barely minimum wages at taxpayer's expense?" (Grennis, 2001).

Second, BMR must contribute to the equitable distribution of net economic and social benefits to the host community. An affordable housing shortage has been acknowledged by many residents within the host community (Vision 2020 Committee, Sewell, 2003; Curto, 2006) and by those whom have studied it (Hakala, 2004; Georgian Triangle Housing Resource Centre, 2007). As noted by Curto (2006), the localized inflation generated by the investment made by the BMR-Intrawest partnership has a ripple effect which translates into inflated housing prices throughout the host community in which BMR resides. Hakala (2004) found that 25% of all households in the host community had more than 30% of their annual household income dedicated to housing. According to Hakala (2004), housing is not affordable if more than 30% of annual income is dedicated to housing.

Curto (2006) interviewed the former Manager of the Georgian Triangle Housing Resource Centre and this individual identified the need for employee accommodation as an important step towards solving the affordable housing crisis. This follows an earlier call made by Wilkinson and Murray (1991) whereby upon examination of the host community in which BMR resides, issued a call for all major new resort developments to provide employee accommodation.

Curto (2006)'s study also revealed the need for affordable housing in order to attract and retain workers. A labour shortage has emerged as there has been difficulty in attracting workers with an environment of rising house prices (Hakala, 2004). Consequently, many businesses recruit from outside the area (Georgian Triangle Housing Resource Centre, 2007) and BMR is having to transport labour from outlying communities (ski resort industry representative, personal interview, August, 2006). This is not unlike other host communities as examined by Gill and Williams (1994) and

Schendler (2005) whom found that resorts without employee housing suffer employee recruitment and retention programs in host communities with an inflated housing market.

But as confirmed by Hakala (2004), BMR has no public plans to create employee housing despite the fact that: "… the resort has a large number of employees, is a prime developing force in the host community and has a large stake in the affordable housing problem". This is despite the fact that BMR seasonal staff earn wages that are insufficient to financially support having a residence within the host community.

Lastly, BMR must provide equal opportunities for tranquility and fitness by encouraging broader socio-economic participation in recreation/tourism activities it delivers.   Currently BMR's efforts to fulfill such a requirement are limited to the following piecemeal efforts: offering low cost night season passes to locals; offering low cost student rates on set dates; and participating in the Grade 5 Ski Resort Passport program[17] (BMR, 2007).

The requirements of the principle of intragenerational equity are not met by BMR given BMR's contribution to the inequitable distribution of benefits and costs within the host community.

5.2.4   Intergenerational Equity

The sustainable ski resort principle of intergenerational equity prescribes that ski resorts are morally obligated to make decisions with the needs of future stakeholders in mind where the outcomes are more likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably. This type of equity stretches into the future and entitles all human beings to sufficiency and opportunity without compromising the integrity of both the biophysical environment and the host community.

In order to fulfill the requirements of intergenerational equity, BMR must give sufficient attention to the current and potential future implications of decisions made at the resort to the well-being of both human and biophysical systems. When making decisions, this requires BMR to reflect upon what choice future generations might prefer if they had a voice in the present.

Within its business plan, BMR defines its stakeholders as its employees, community members, guests, shareholders, business operators, contractors and suppliers (ski resort industry representative, personal interview, August, 2006). A business plan with a 'futurity' planning horizon ensures that longer-term considerations are taken into account. Given that future generations are not formally acknowledged as a stakeholder by BMR, the needs of future generations cannot begin to be factored into decision-making. Given this reality, *the principle of intergenerational equity is absent* at BMR.

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[17] This program is administered through the Canadian Ski Council and is used as a way to introduce Grade 5 students to skiing and snowboarding by offering these students to ski for free with a SnowPass[TM].

5.2.5   *Resource Maintenance and Efficiency*

The sustainable ski resort principle of resource maintenance and efficiency directs ski resorts to reduce their net consumption of materials, energy and water while closing the 'loop' on material flows. The sustainable ski resort principle of resource maintenance and efficiency must also be pursued concurrently with the sustainable ski resort principles of equity, sufficiency and socio-ecological system integrity by investing efficiency gains in areas that are deficient in natural and social capital.

As a consequence of delivering ski resort services to its guests, BMR consumes materials and resources. For BMR to be a sustainable ski resort, its decisions with respect to the purchase, and use of materials and resources must take an integrated systems approach towards reducing its net consumption of energy, water and materials, and ultimately operate within absolute limits—a requirement of socio-ecological system integrity. In addition, BMR must also fulfill the sustainable ski resort principles of equity, sufficiency and socio-ecological system integrity by ensuring that the economic gains achieved through the pursuit of resource maintenance and efficiency do not go to more resource consumption, but rather are invested in areas that are deficient in natural and social capital, thereby acting in a restorative way.

BMR exhibits commitment to meeting some of the requirements of the sustainable ski resort principle of resource maintenance and efficiency. In fact, the primary focus amongst BMR's responses to its sustainability challenges has been on achieving efficiencies across the resort in terms of materials consumption (i.e. goods and services purchased, used and disposed of) and resource consumption (i.e. water and energy consumed) as evidenced in its commitments made to both the *Green Plan*[18] in 1997 and NSAA's *Environmental Charter* in 2001. The guidance provided in these frameworks is heavily weighted in measures aimed at achieving energy savings, water savings and waste reduction.

BMR must work with its suppliers, staff and guests in ways that result in more sustainable actions across the life cycle chain of materials consumed by the resort (i.e. purchase, use and end-of-life). In light of this requirement, BMR's primary focus has been on adopting more sustainable actions with respect to the end-of-life impacts resulting from material consumption

For a number of years, BMR has experienced success and recognition[19] with its composting program[20]. In order to keep food waste out of landfill, BMR established a policy to compost all food

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[18] The *Green Plan* was developed by BMR in partnership with the Environment Network of Collingwood.
[19] BMR is a recipient of the Blue Mountain Watershed Trust Fund Environment Award and Collingwood Chamber of Commerce Triple E Award for Environmental and Economic Excellence (BMR, 2004a).
[20] Compostable materials collected include: all food waste, fruits, vegetables, meats, bones, shell fish, poultry, dairy products, eggs including shells, cooked foods, leftovers, coffee grounds, coffee filters, tea bags, paper napkins, paper hand towels and facial tissue (BMR, 2004b).

waste generated in kitchens and at banquets, including preparation and table scraps (BMR, 2004b). In early 2006, BMR re-aligned its resort-wide waste management program, by partnering with a multi-material recycling company that shares similar goals with BMR in terms of waste diversion and is motivated by profits from recycling (ski resort industry representative, personal interview, August, 2006). BMR's relationship with this contractor has been characterized by many at BMR as a partnership, as both sides share a collective goal to divert as much waste as possible from the landfill and work together to attain this goal (ski resort industry representative, personal interview and participant observation, August, 2006).

Through the leadership of its purchasing department, BMR has undertaken some piecemeal efforts to work with its suppliers to reduce material and resource consumption in the absence of a comprehensive resort-wide green purchasing policy (ski resort industry representatives, personal interviews, August, 2006). For instance, BMR works with its suppliers to reduce unnecessary waste from packaging and purchases products constructed from recycled materials or energy conserving equipment such as compact fluorescent lighting (BMR, 2004b). Where possible, the ski resort also purchases locally produced goods in order to reduce the amount of fuel used in transportation (ski resort industry representatives, personal interviews, August, 2006).

In addition to BMR responses to material consumption, there have been responses to the sustainability challenges associated with resource consumption (i.e. water and energy). As far as more sustainable use of energy and water, BMR has undertaken some selected initiatives despite not having a comprehensive resort-wide strategy in place. For instance, BMR has made significant efficiency improvements in its snowmaking system over the years, primarily through automation and new technology, resulting in both energy and water conservation (BMR, 2004a; participant observation, August, 2006).

There is no evidence to suggest that BMR has a mechanism in place to ensure that the savings from efficiency measures are invested in ways that do not expand demands for resources leading to impacts elsewhere (participant observation, August, 2006). Presently BMR lacks a comprehensive resort-wide monitoring system that tracks the gains incurred by efficiency improvements. Such a system would serve to facilitate a mechanism whereby the savings from efficiency measures could be tracked and monitored to ensure that the savings are redistributed towards social and natural capital investments rather than spent on goods and services that lead to impacts elsewhere.

The requirements to fulfill the principle of resource maintenance and efficiency are partly met by BMR, but it is evident that a greater commitment is needed in terms of having a comprehensive resort-wide strategy in place that seeks to reduce the net consumption of materials, energy and water and a mechanism is needed to begin redistributing the efficiency gains towards social and natural

capital investments. Overall, BMR's primary focus has been on adopting more sustainable actions with respect to the end-of-life impacts resulting from material consumption.

5.2.6 *Socio-ecological Civility and Democratic Governance*

The sustainable ski resort principle of socio-ecological civility and democratic governance directs ski resorts to apply the sustainable ski resort principles through more open and better informed deliberations with the host communities, by fostering social and ecological awareness and shared responsibility amongst internal and external stakeholders; and, by using more integrative decision-making processes.

To fulfill this principle, it is essential that BMR build capacity for applying the sustainable ski resort principles in an integrative fashion. Above all, it is necessary that BMR foster strong relationships with its employees and external stakeholders such that there exists a collective responsibility and capacity for pursuing a sustainable ski resort.

The sustainability of BMR is partly determined in the way it operates as an organization through its governance structure. Unlike other ski resorts in Ontario, BMR has the organizational capacity to have a full-time environmental coordinator[21] as well as a cross departmental team to oversee the development and implementation of BMR's Environmental Vision (ski resort industry representative, personal interviews, August, 2006).

Since 2001, BMR uses its Green Team, a cross-departmental group[22] of staff, as the governance structure for deliberating and decision-making on BMR's sustainability challenges.   The purpose of the BMR Green Team is three-fold: "To act as an advisory body whose function is to raise environmental knowledge and awareness of Blue Mountain staff; To promote green initiatives and projects that help to instil a resort-wide culture where green considerations are incorporated into daily decisions; and, To provide direction and/or development with respect to our Green mandate" (BMR, 2005). Green Team members are encouraged to bring forward ideas or concerns on behalf of their co-workers (ski resort industry representatives, personal interviews, August, 2006).

BMR's Green Team has established an Environmental Vision statement for the resort and it reads as follows: "Blue Mountain Resort's overall environmental vision is to be recognized as a leader among four-season resort destinations in Canada for our exceptional commitment to the environment in

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[21] The environmental coordinator's duties mainly involve waste management issues. In 2005, these duties were expanded to addressing a full range of environmental issues at the resort. The environmental coordinator is the chair of the Green Team.

[22] The Green Team was created in 2001 and meets ten times per year. The Green Team is intended to have representation from all the main departments (i.e.: Environmental, Planning, Accounting, Grounds, Food and Beverage, Retail/Rentals, Human Resources, Housekeeping-Inn, Housekeeping-Village, Conference Services, and Club Intrawest/Village Association) (BMR, 2005).

which we live, work and play and for continually striving to achieve resort-wide sustainability. It is our goal to have 100 percent of staff working towards sustainability by participating in company green programs. Blue Mountain is committed to maintaining the Niagara Escarpment, in which we are located, as a healthy ecosystem for both present and future generations to enjoy. Furthermore, we recognize our impact on the natural environment and are committed to improving environmental performance in all aspects of our Resort's operations to further minimize this impact" (BMR, 2004b). BMR is the only ski resort in Ontario and is among only a few ski resorts in Canada to have an articulated environmental vision and to have a cross-departmental green team as the governance structure for deliberating and decision-making on its sustainability challenges (government agency and public institution representatives, personal interviews and participant observation, August, 2006).

Striving to reach their goal of having 100% of staff working towards sustainability, BMR launched *Hiring for a Green Future* in 2003. This initiative introduced a green component into job application forms and in interviews as well as during new hire orientation sessions to make staff more aware about BMR's commitment to sustainability (ski resort industry representative, personal interview, August, 2006). Despite this commitment, BMR faces significant challenges in reaching this goal as they are heavily reliant upon seasonal staff with 1 700 winter and 150 summer employees being seasonal, compared to 450 full time year round employees. The heavy reliance on seasonal staff influences the capacity of the organization to learn and adopt more sustainable practices.

Outside of the Green Team, BMR has engaged its staff in two significant, yet isolated, cross-departmental initiatives aimed at improving the resort's sustainability. In 2003, BMR held a *GE Workout*[23] on the issue of waste management with the goal of establishing a program to reduce BMR's generation of solid waste. More recently, in 2006, BMR has been involved in cross-departmental discussions concerning energy use and efficiency measures at the resort. This represents a significant action, as prior to this; various departmental managers at the ski resort were making decisions that affected energy use in isolation of one another, without any consideration given to what could be done collectively across the resort to reduce energy use (ski resort industry representative, personal interview, August, 2006).

As demonstrated above, BMR fosters strong relationships with its employees thereby creating a sense of shared responsibility and capacity for pursuing a sustainable ski resort. As expressed by a key informant, "BMR has developed a corporate approach to becoming environmentally responsible which includes written policies and procedures, the creation of a full-time Environmental Coordinator

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[23] General Electric (GE)'s CEO Jack Welch is credited with forming the Workout program that comprises of a problem-solving process involving facilitation tools and techniques which are intended to empower an organization to break down its bureaucracy and hierarchy in order to arrive at creative solutions to organizational problems that it is facing.

position, a very active and effective resort-wide Green Team and employee recognition and incentives." (public institution representative, personal interview, August, 2006).

In terms of efforts to foster strong relationships with BMR's external stakeholders, efforts have been made on an adhoc basis. For instance, BMR actively participates in the OSRA Environmental Best Practices Taskforce (BMR, 2004b) and is a strong supporter of Georgian College's Ski Resort Operations program (participant observation, August, 2006). Outside of organizations that are directly linked within the ski resort industry, BMR's relationship with external stakeholders is best characterized as being motivated by the need to respond to regulatory requirements. For instance, BMR works closely with the Niagara Escarpment Commission prior to any new development taking place (BMR, 2004b) as the Niagara Escarpment Commission has development authority over the land adjacent to the Niagara Escarpment (Niagara Escarpment Commission, 2006). On the waste front, Ontario 3 Rs legislation requires commercial facilities such as BMR to prepare and implement plans to reduce, reuse, and recycle waste, and to have a program in place to facilitate the source separation of waste for reuse or recycling (government agency representative, personal interview, August, 2006).

Outside of the regulatory framework, there is a need to work more collaboratively with external stakeholders. Interviews with several key informants at BMR revealed the need to work more collaboratively with the Town of Collingwood to better address these impacts such as the need noted by Vision 2020 to provide a public transportation link between BMR and downtown Collingwood (ski resort industry representatives, personal interview, August, 2006).

The application of the principle of socio-ecological civility and democratic governance to BMR shows that the *requirements are partly met* through BMR's efforts to create a sense of shared responsibility and capacity with its employees to pursue a sustainable ski resort and that there exists a strong potential for future improvement.

5.2.7   *Precaution and Adaptation*

In circumstances of uncertainty, the sustainable ski resort principle of precaution requires that ski resorts take anticipatory action by pursuing diversity, flexibility and reversibility in decision making outcomes and by adopting a long-term planning horizon. In circumstances where surprises arise or anticipated problems that cannot be prevented occur, the sustainable ski resort principle of adaptation requires that ski resorts make adjustments in light of negative effects that have the potential to cause serious or irreversible damage to the foundations of sustainability.

Precaution and adaptation are necessary requirements for pursuing sustainability as

they contribute to the objectives of socio-ecological civility and democratic governance by providing guidance on operating a flexible decision making process that is better equipped to address the complexities of protecting socio-ecological system integrity.

To embrace precaution as a sustainable ski resort principle, BMR needs to anticipate decision making outcomes over a long-term planning horizon and needs to be willing to act on incomplete but suggestive evidence of significant risk to socio-ecological systems that are crucial for sustainability. For BMR to manage for unforeseen effects or anticipated problems that cannot be prevented, it must invest in research and monitoring such that BMR acquires a greater understanding of its impacts on socio-ecological systems, thereby being better equipped to respond by making adjustments in light of negative effects.

Senior management at BMR are acutely aware of the risks climate change poses to their ski business and as such have taken adaptive measures (participant observation, August, 2006). In terms of skiing as an activity, BMR has made significant investments in optimizing the effectiveness of its snowmaking systems by monitoring and adjusting to changing meteorological conditions as a primary adaptation strategy to climate change (ski resort industry representatives, personal interviews, August, 2006). Efforts have also been made over the years to diversify the range of ski resort activities they offer to include indoor activities (e.g. aquatic centre, spa, etc.), however it is likely that these efforts were driven primarily by business imperatives than as adaptation measures to climate change.

Beyond snowmaking, BMR does not actively invest in research and monitoring that serves to acquire a greater understanding of the impacts of its activities on the socio-ecological systems it is embedded within. Rather BMR internally monitors its environmental performance in a limited fashion by documenting water savings, energy savings, waste reduction and vehicle kilometres avoided and BMR annually submits a report to NSAA's Sustainable Slopes program (BMR, 2004b). In addition, BMR's Green Team conducts monthly workplace inspections using the 'green checklist'. The checklist serves as a window into the current state of BMR's environmental performance and is used to notify management of issues that need to be addressed. The Green Team reviews and recommends enhancements to BMR's Green Program on an annual basis (ski resort industry representatives, personal interviews, August, 2006).

The application of the principle of precaution and adaptation to BMR shows that the *requirements are partly met* through the efforts of BMR's Green Team. Overall, what is missing is a comprehensive sustainability monitoring program to identify and correct in a timely manner any potential deficiencies in sustainability performance. This combined with a set of comprehensive short-term and long-term targets would serve to stimulate continual improvement.

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5.2.8   Immediate and Long-term Integration

By its nature, the sustainable ski resort principle of immediate and long-term integration requires the interconnections between the sustainable ski resort principles be considered as important as the attention given to the individual requirements behind each principle. Ski resort owners and operators must apply all the sustainable ski resort principles at once and pursue net gains amongst the principles.

In order to progress towards sustainability, it is vital that BMR adopts an integrated approach, whereby deliberations and decisions consider the interconnections between the sustainable ski resort principles to be as important as consideration to the individual requirements behind each principle. Overall, BMR must strive to meet the sustainable ski resort principles as a whole, rather than in a compartmentalized way, thus seeking opportunities to contribute to all of them by arriving at decisions that strengthen the whole—resulting in net gains amongst the principles.

At the core of BMR's understanding of a sustainable ski resort are BMR's *Green Plan*, NSAA's *Environmental Charter* and OSRA'*s Environmental Best Practices.* BMR remains the only ski resort in Ontario and one of only two ski resorts in Canada to have endorsed the NSAA's Environmental Charter (ski resort industry and environmental non-government organization representatives, personal interview, August, 2006). Building upon these frameworks is BMR's own interpretations of sustainability in what BMR refers to as its *Environmental Vision* as introduced under the principle of socio-ecological civility and democratic governance. Combined, these frameworks are used by BMR to guide its actions towards more sustainable outcomes (ski resort industry representatives, personal interview, August, 2006). Unfortunately, all of these frameworks, including BMR's *Environmental Vision*, provide guidance on pursuing sustainability in a compartmentalized way. The actions taken based on this guidance have primarily focused on achieving outcomes in efficiency whereby there are direct economic benefits for the resort. As some key informants expressed: "It's amazing how implementing one or two simple changes in your operation can start to save money right away" and "…save on costs and improve efficiency while protecting the environment and minimizing liabilities" (ski resort industry representatives, personal interviews, August, 2006). Examples of such actions have been provided under the principle of resource maintenance and efficiency and as such will not be reiterated here.

As demonstrated in chapter 4, the current frameworks used by BMR to guide its actions towards more sustainable outcomes fall short of what constitutes a sustainable ski resort. Applying the principle of immediate and long-term integration reveals that BMR fails, in an integrative way, to take into account the full range of sustainability requirements as articulated by the sustainable ski resort

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principles.   Overall, as evidenced in the current conditions and trends at BMR, insufficient attention is given to the linkages and interdependencies that exist between BMR and the biophysical and societal systems that it is nested with. *Therefore, the requirements of the principle of immediate and long-term integration are unmet.*

5.3   Summary of the Findings from the Ideal Type Analysis

As described in chapter 3, the application of the sustainable ski resort principles provides an indication of where a ski resort resides on the sustainable ski resort continuum. Using ideal type analysis, the findings reveal the extent to which the sustainable ski resort requirements exist at BMR. These findings are captured in table 5.6 and are summarized in the paragraphs below. The findings from the ideal type analysis serve to answer the second thesis question—How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?

Table 5.6: Application of Sustainable Ski Resort Principles to Blue Mountain Resort

Sustainable Ski Resort Principles	Existence of Sustainable Ski Resort Requirements		
	Absent	Partially realized	Fully present
Socio-ecological system integrity		X	
Livelihood sufficiency and opportunity		X	
Intragenerational equity	X		
Intergenerational equity	X		
Resource maintenance and efficiency		X	
Socio-ecological civility and democratic governance		X	
Precaution and adaptation		X	
Immediate and long-term integration	X		

The ideal type analysis of the current conditions and trends at BMR reveals the sustainable ski resort requirements are partially realized as follows:

- BMR contributes to programs (and engages its staff) on an ad hoc basis that serve to strengthen the social fabric of the host community and the well being of the biophysical environment.
- BMR has taken a leadership role in advocating for the reduction of greenhouse gas emissions amongst its staff and guests, thereby partially realizing what is required by the principle of livelihood sufficiency and opportunity.

- BMR has been successful at diverting its waste from landfill and has on a case-by-case basis reduced its material and resource consumption, thereby partially emulating the principle of resource maintenance and efficiency.

- BMR has a governance structure specifically for its sustainability challenges thereby fostering a sense of shared responsibility amongst its staff—a key requirement of the principle of socio-ecological civility and democratic governance.

- BMR has a monitoring system in place that is limited to monthly workplace inspections on waste reduction and efficiency, thereby partially realizing a key requirement of the principle of precaution and adaptation.

As demonstrated above, BMR has taken a leadership role among Ontario ski resorts, both through its actions on solid waste reduction and its actions to educate and encourage its staff and guests to reduce greenhouse gas emissions. In addition, BMR's governance structure and monitoring system form significant foundations to further improve conditions toward a sustainable ski resort. Despite these positive conditions and trends, further efforts are needed to build BMR's capacity to: decouple improvements in quality and service from further growth and consumption; redistribute efficiency gains in areas that are deficient in natural and social capital; proactively foster a shared sense of responsibility among external stakeholders; and, invest in research and monitoring for greater understanding of the socio-ecological footprint which will serve to inform the setting of comprehensive short-term and long-term targets to stimulate continual improvement.

Aside from the partially realized sustainable ski resort principles, the following principles were absent as evidenced in the current trends and conditions at BMR:

- BMR is undergoing rapid quantitative growth and has future plans to continue this growth beyond its existing socio-ecological footprint thereby falling short of what is required by the principle of socio-ecological integrity. This is not unlike other ski resorts around the world that are re-creating themselves into multi-season destinations with diverse activities (Hudson, 2002) and are often focusing on real estate development (Rivera *et al.,* 2006).

- The low-end wages provided to BMR seasonal staff coupled with the absence of employee housing suggests that BMR falls short of what is required by the principle of intragenerational equity. Again, BMR is not unique in terms of its challenges with respect to need to provide affordable housing for ski resort employees (Gill, 1991; Gill, 1997; Gill and Williams, 1994; Laing, 1998; Schendler, 2005).

- Future generations are not formally acknowledged as a stakeholder by BMR thereby the principle of intergenerational equity is absent. A similar gap is noted in the current state of the

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sustainable ski resort discussion, where there appears to be a missing linkage between acknowledgement of pursuing sustainability for the benefit of future generations and guidance on operating in the interests of future generations.

- The current frameworks used by BMR to guide its actions towards more sustainable outcomes take a compartmentalized approach to sustainability challenges. As a consequence, the linkages and interdependencies between sustainability challenges remain unseen. Hence, BMR lacks the guidance to pursue opportunities and arrive at decisions that contribute to the sustainable ski resort requirements as a whole, therefore the requirements of the principle of immediate and long-term integration are unmet.

The above findings suggest that BMR, and ski resorts in general, do not presently have sufficient guidance to address its sustainability challenges in an integrated way where it can act to reduce its socio-ecological footprint as a whole both within and beyond the destination area to include the host community. This is not surprising as the ideal type analysis performed in chapter 4 revealed that the current understanding of sustainable ski resorts falls short of the guidance provided by the sustainable ski resort principles in several key areas.

In light of the overall findings, the final chapter of this thesis discusses the contributions and conclusions and presents a set of recommendations for future research. In doing so, chapter 6 revisits the research questions: What constitutes a sustainable ski resort? and How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

The findings of this thesis are now summarized and recommendations are drawn based on these findings. In light of the findings, this chapter revisits the research questions and considers the implications for further investigations in this area of study. Based on the findings and recommendations of this thesis, conclusions regarding the theoretical and applied contributions of developing and applying the sustainable ski resort principles are developed. Overall, the thesis provides a solid understanding of what a sustainable ski resort should ideally achieve, and provides a good knowledge base from which further opportunities for research can build upon.

6.1 Research Questions Revisited

What constitutes a sustainable ski resort?

The Gibson principles are generalized statements of essential outcomes and requirements that serve as a sufficient starting point from which to explore what constitutes a sustainable ski resort. In this case, the principles have been adapted to fit the context of the ski resort sector, using the principles as an analytical framework for reviewing and incorporating insights from relevant literature. The sustainable ski resort principles emerged from this adaptation process.

The sustainable ski resort principles are geared toward delineating the ideal sustainable outcomes at ski resorts, making it possible to distinguish between sustainable outcomes and unsustainable outcomes. In addition, the sustainable ski resort principles offer a holistic interpretation of sustainability comprised of interdependent requirements, thereby broadening the scope of decision-making beyond the conventional categories (i.e. environmental, economic and social). The integrated systems approach upon which this interpretation of sustainability is based makes it difficult for ski resorts to fulfill all the requirements, which in reality may only be possible in the long-term or not at all. Rather the pursuit of a sustainable ski resort is a journey whereby ski resort owners and operators can seek to advance their ski resort along a sustainable ski resort continuum.

The sustainable ski resort principles offer 'strategic' direction as to what a sustainable ski resort should ideally achieve. They do not offer operational guidelines for applying the principles to both proposed and existing ski resort activities within all levels of decision-making. This is not considered to be a drawback, however, because the operational guidelines should be developed in collaboration with ski resort owners, operators, staff and other stakeholders and elicits their full commitment and energy. As such, the sustainable ski resort principles developed in this research serve as a starting

point from which to embark on further study to build upon and adopt the sustainable ski resort principles in ways that would help guide ski resorts on a path to sustainability.

How does Blue Mountain Resort as an exploratory case study compare to the requirements of a sustainable ski resort?

The current frameworks used by BMR fall short of adequately identifying what constitutes a sustainable ski resort. Consequently, BMR and ski resorts in general, do not presently have the sufficient guidance needed to first view the linkages and interdependencies between its sustainability challenges; and, second to arrive at decisions that strengthen the well-being of the socio-ecological systems they are nested within.

The analysis of the case study findings reveals that five of the eight sustainable ski resort principles are partially realized as represented by BMR's demonstrated leadership amongst ski resorts in Ontario in the areas of solid waste reduction, energy efficiency and staff/public education.

Further efforts are needed to build BMR's capacity to: decouple improvements in quality and service from further growth and consumption; redistribute efficiency gains in areas that are deficient in natural and social capital; proactively foster a shared sense of responsibility among external stakeholders; and, invest in research and monitoring for greater understanding of the socio-ecological footprint which will serve to inform the setting of comprehensive short-term and long-term targets to stimulate continual improvement.

The case study findings suggest that ski resorts do not presently have sufficient guidance to address its sustainability challenges in an integrated way—where it can act to reduce its socio-ecological footprint as a whole both within and beyond the ski resort to include the host community. Therefore, the use and integration of the sustainable ski resort principles into everyday decision-making is a fundamental step towards ski resorts, including BMR, becoming more sustainable.

6.2   Indications of Obstacles and Opportunities for Sustainability

The application of the sustainable ski resort principles to BMR provides an indication of what obstacles and opportunities to sustainability may exist at BMR. This section discusses some of BMR's obstacles and opportunities to sustainability as suggested by the data collected through interviews, participant observation and secondary documents specific to the case study. Some of these obstacles and opportunities may be relevant to other ski resorts or similar businesses that operate as recreation/tourism destinations and are discussed below.

6.2.1 *Heavy reliance on a seasonal workforce*

Developing employee awareness on sustainability and maintaining employee motivation to address sustainability issues is a significant challenge for any organization, let alone ski resorts, due to the seasonality of the ski resort business. BMR in particular faces this challenge, as the resort relies heavily on a seasonal workforce comprised of 1700 winter and 150 summer employees that are seasonal, compared to 450 full time year round employees.   The heavy reliance on seasonal staff influences the capacity of the organization to learn and adopt more sustainable practices into everyday decision making. This obstacle to sustainability is likely more substantial for ski resorts of BMR's size, than for smaller sized ski resorts where full-time staff outnumbers seasonal staff, making communication and coordination less difficult.

6.2.2 *Short-term, profit-focused decision making*

Many ski resorts are commercial, for-profit enterprises. Some, like BMR, are concerned with creating shareholder value. Not unlike other enterprises, ski resorts face economic constraints which present themselves as significant obstacles to sustainability. Often short-term, profit-focused decisions win out over long-term vision due to cost, resources and time constraints. Ski resorts, like many profit-making enterprises, are heavily price-driven, so any increase in the price of ski resort activities due to costs incurred from sustainability projects may be poorly received.   This is perhaps a likely explanation for why many ski resorts, including BMR, have been focused on achieving sustainability outcomes in efficiency as there are perceived economic benefits for the resort.

6.2.3 *Mindset of ski resort guests*

Another key obstacle to sustainable ski resorts is the paradox between sustainability and the laissez-faire attitude that often comes with ski resort guests being on holiday. Many of these guests arrive at a ski resort with one purpose in mind—to enjoy and escape from everyday responsibilities through the participation in ski resort activities (ski resort industry representative, personal interview, January, 2007).   Such a mindset will continue to present challenges to BMR, and other ski resorts, as an inherent contradiction exists when advocating the need for environmental stewardship in a resort environment that delivers experiences which often involve indulgence.

6.2.4   Multiple municipal jurisdictions

BMR is nested within the host community that is part of several municipalities and counties. The multiple municipal jurisdictions compound the inequities apparent between the jurisdictions. For instance, the development activities of BMR are within the jurisdiction of the Town of the Blue Mountains whereas the spin-off issues related to BMR's development (i.e. housing shortage, increasing demand on local infrastructure and commercial competitiveness) have major ramifications on the Town of Collingwood. Due to the municipal boundary, the Town of Collingwood is not able to obtain direct tax revenues from BMR's activities to address the spin-off issues related to BMR's growth. Further, the Town of Collingwood's capacity to negotiate with BMR on the development process has been inhibited by the municipal line that separates it from BMR's activities (government agency representative, personal interview, January 2007).

Overall, the multiple municipal jurisdictions in which BMR resides inhibit collaboration between BMR and a significant part of the host community (i.e. Town of Collingwood). As revealed by key informants at BMR, there is a need to work more collaboratively with the Town of Collingwood to better address these spin-off effects such as the need noted by Vision 2020 to provide a public transportation link between BMR and downtown Collingwood (ski resort industry representatives, personal interviews, January 2007).

Despite the obstacles to sustainability, there are some opportunities that if pursued, could improve the sustainability of BMR and possibly other ski resorts. These opportunities will be discussed in the section to follow.

6.2.5   Supportive Corporate Culture

According to Doppelt (2003), a leading expert in sustainability change management, sustainability initiatives must explicitly focus on changing the culture of the organization in order to ensure lasting improvements in sustainability. In this regard, BMR is well on its way to adopting a resort-wide environmental ethic through the efforts of its Green Team—a cross departmental group of staff whom have the endorsed support of BMR's senior executive team and receive further encouragement from executives at Intrawest (ski resort representative, personal interview, August, 2006). Although further advancements need to be made, BMR's Green Team serves as a governance structure for generating the cultural changes necessary for addressing BMR's sustainability challenges. A significant opportunity resides in leveraging the Green Team's efforts in ways to further advance resort-wide changes in governance, thereby encouraging greater coordination and cooperation across departments and with external stakeholders thus transforming BMR toward a sustainable ski resort.

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6.2.6   *Local industry association emerging as an advocate for sustainable ski resorts*

BMR is an active member of the local industry association—the Ontario Snow Resorts Association (OSRA). Although in the preliminary stages, OSRA's Environmental Best Practices Task Force is emerging as an advocate for sustainable ski resorts. This suggests that a strong opportunity may develop both for BMR and the ski resort industry as a whole. OSRA plays a large role in strengthening the decision-making capacity of Ontario ski resorts by supporting measures that enhance continuous learning through education and information sharing (ski resort industry representative, personal interview, August, 2006). Examples specific to sustainable ski resorts include the development of a series of environmental best practices for ski resort managers; coordination of the 2007 Keep Winter Cool campaign across five ski resorts in Ontario; and, the annual delivery of environmental best practices workshops during the OSRA Fall Education week (ski resort industry representative, personal interview; participant observation, March, 2007). The continued dedication of the OSRA Environmental Best Practices Task Force to the betterment of Ontario ski resorts will undoubtedly play a significant role in orienting the future of the ski resort industry towards sustainability.

6.2.7   *Host community awareness and concern*

Civil society is emerging as an influential voice in the host community's journey towards sustainability. Heightened concerns have been expressed regarding the impacts of quantitative growth (i.e. affordable housing, increased traffic, etc.) such as those evidenced in the Vision 2020 process and local elections. This indicates that the public has a vibrant local democracy that encourages debate and engagement (government agency representative, personal interview, August, 2006).   This will have positive impacts on the sustainability of the host community if the public continues to vocalize its concerns. Citizens from the host community have an obligation to work together rather than at odds with each other on the basis of addressing the socio-ecological inequities that are currently thriving, as a symptom of the municipal fragmentation that exists. Efforts in this regard will open collaboration opportunities between BMR and a significant part of the host community (i.e. Town of Collingwood) to better address the socio-ecological inequities.

Aside from these findings, the application of the sustainable ski resort principles has also resulted in findings that reveal the strengths and limitations of applying principles that operate on an integrated systems approach.   These findings will be discussed in the proceeding section.

6.3   Strengths and Limitations of Applying the Sustainable Ski Resort Principles

As raised in chapter 2 of this thesis, the integration of a broad set of factors, operating on complex systems theory, is desirable in decision-making for sustainability; however its application poses difficulties in many instances.   This section summarizes some of the strengths and limitations of applying the sustainable ski resort principles and adds value to the broader debate on sustainability principles that operate on an integrated systems approach to sustainability. The strengths are identified as where the sustainable ski resort principles hold promise in their intended purpose—to provide guidance that will lead to a better impact on sustainability, whereas the limitations are identified as those difficulties that likely make the principles overly ambitious and impractical.

The strengths of applying the sustainable ski resort principles are summarized as follows:

- The sustainable ski resort principles provide an introduction to what a sustainable ski resort should ideally achieve by capturing the key linkages and interdependencies that exist between ski resorts and the biophysical and societal systems they are nested within.

- The sustainable ski resort principles are effective in differentiating sustainable outcomes from unsustainable outcomes.

- The sustainable ski resort principles are successful at examining the sustainability challenges facing ski resorts through a broader set of considerations.

The limitations of applying the sustainable ski resort principles are summarized as follows:

- The sustainable ski resort principles do not measure sustainability, i.e.: the 'distance from the target'. Given the sustainable ski resort principles were made operational for the purpose of applying them in a strategic manner (i.e. w hat constitutes a sustainable ski resort?), the principles are effective at assessing the state of sustainability at a ski resort.

- The sustainable ski resort principles invoke a complex system of linkages and interdependencies that exist between ski resorts and the biophysical and societal systems they are nested with. As such, the principles require a greater understanding of how this complex system works and in particular, a greater understanding of the capacity of this complex system to deliver ecological and social services reliably into the future. These challenges are likely to make the principles overly ambitious and impractical as evidenced in the case study where none of the sustainable ski resort principles were fully present.

- The sustainable ski resort principles require a greater understanding of the needs and technological capabilities of future generations, as well as the future effects of present actions

in order for the interests of future generations to be adequately served by the current generations of decision-makers.

In summary, this thesis acknowledges the above limitations make the application of the sustainable ski resort principles likely overly ambitious and impractical. Despite these limitations, the application of the sustainable ski resort principles is desirable given that the principles themselves successfully enhance the current understanding of what constitutes a sustainable ski resort and offer a long-term vision on what a sustainable ski resort must achieve. Without the sustainable ski resort principles, it is more likely that decisions made by ski resort owners and operators will lead to unsustainable outcomes.

6.4   Areas of Further Research

During the process of undertaking this thesis, several areas of further research have been identified and are summarized below. The areas of further research have been uncovered through the insights and data gaps encountered in this work and through areas that lead into fields of research that are beyond the scope of this thesis.

Ideal Sustainability Outcomes at Ski Resorts

- The sustainable ski resort principles require further testing with multiple ski resorts of varying contexts, such that more substantive generalizations can be made about the obstacles and opportunities for sustainability.
- Further work is required to determine how the integration of sustainable ski resort principles might be best achieved, particularly in circumstances where sacrifices and concessions need to be made, which are notably more evident at the project-specific level than at the strategic-level. As acknowledged in this thesis, the integration of a broad set of factors and our limited understanding of complex systems remain challenges.

Application of Sustainability Principles to Guide More Sustainable Outcomes at Ski Resorts

- The sustainable ski resort principles require further application to a broader range of ski resorts in order to improve relevance and practicality.
- As a package, the sustainable ski resort principles provide an introduction to what a sustainable ski resort should ideally achieve, integrating economic, social and environmental concerns. As an extension of this thesis, further work is required to determine how the integration of

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sustainable ski resort principles might best be applied to both proposed and existing ski resort activities and within all levels of decision-making. It is suggested that the outcome of this work take the form of operational guidelines for applying the principles in decision-making. The guidelines would assist ski resorts on the effective application of the principles (i.e. how and to what systems they would be applied) by providing guidance on defining the systems boundaries when applying the principles.

- It is important to investigate the potential amongst ski resorts for integrating sustainability concepts into decision-making processes. A comprehensive study is needed to examine the extent to which resource constraints, institutional capacity and other obstacles influence the ability of ski resorts to move towards the sustainable ski resort principles, followed by an investigation into the strategies for overcoming impeding obstacles.

Transition from Principles to Practice

- As the first of three stages of taking sustainability from principles to practice, the development and application of the sustainable ski resort principles serves to answer whether a ski resort is sustainable (i.e. vision on what must be achieved). A natural and important extension of this work can be found in the transition from the principles to practices (i.e. where the principles become operationalized). This transition comprises of: investigating the methods for pursuing sustainability (i.e. best practices, environmental management systems, lifecycle analysis, etc.) and identifying and using indicators of success to monitor and measure the effectiveness of the best practices in making progress towards sustainability.

- One of the main data gaps noted in the exploratory case study is the lack of data on the wider socio-ecological footprint of BMR. Future work on quantifying the wider socio-ecological footprint of BMR or ski resorts in general, is necessary in order to establish a baseline from which progress towards sustainability can be measured against. Such work could lead to considering the wider socio-ecological implications of any type of recreation/tourism destination.

6.5   Concluding Remarks

This thesis demonstrates some of the challenges associated with developing and applying an integrated set of principles specific to ski resorts and the ecological and human systems they interact with. Further difficulties will be encountered by ski resorts attempting to fulfill what is required by the sustainable ski resort principles due to the complex grounds upon which the principles were developed.

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Despite these difficulties, the sustainable ski resort principles are successful at envisioning what an ideal sustainable ski resort should look like, thereby setting a long-term vision on what must be achieved. When applied, the sustainable ski resort principles serve to distinguish between sustainable outcomes and unsustainable outcomes and thus help to guide ski resorts towards the idealized model of a sustainable ski resort as articulated by the sustainable ski resort principles. Without the sustainable ski resort principles, it is more likely that decisions made by ski resort owners and operators will lead to unsustainable outcomes.

This work makes a significant theoretical contribution as it represents one of the early attempts in the literature to use the Gibson principles in a practical application as a way of developing principles that are sector specific. As such, this thesis adds value to the broader theoretical debate on the strengths and limitations of applying sustainability principles that operate on an integrated systems approach.

This work makes two significant applied contributions. First, it advances the understanding in what constitutes a sustainable ski resort by being the first to develop sector-specific principles relevant to the ski resort sector that operate on an integrated systems approach using the Gibson principles as a basis for development. This contribution addresses a significant gap in conventional thinking. Second, the sustainable ski resort principles are useful when applied to specific cases such as BMR, as their application reveals how a ski resort compares to the idealized model of a sustainable ski resort.

In closing, this work opens opportunities for practitioners and stakeholders to use these principles and consider what fundamental changes need to take place for ski resorts to move towards sustainability. As a model of a sustainable ski resort, the sustainable ski resort principles provide communities and the ski resort industry with a way to evaluate current processes, in order to determine what needs to take place to improve the sustainability of a ski resort. It also has broader applications to other businesses, in particular those that provide products and services related to recreation/tourism activities. Future work on applying the principles is necessary to improve the relevance and practicality of the sustainable ski resort principles.

APPENDICES

Appendix A: Matching Thesis Information Requirements with Interview Questions and Key Informants		
Thesis Information Requirements	Interview Questions	Key informant Category
1. <u>Ideal Sustainability Outcomes at Ski Resorts</u>: Need information that explores and contributes to the understanding of what constitutes a sustainable ski resort.	• How do ski resorts affect the well being of host communities and the biophysical environment? • What is your understanding of a sustainable ski resort? • What changes are needed to make ski resorts more sustainable? • Why do you think it is important for ski resorts to be corporate leaders in sustainability?	Sustainable Ski Resort Discussion Contacts
2. <u>Use of Sustainability Principles to Guide More Sustainable Outcomes at Ski Resorts</u>: Need information that explores what the sustainable ski resort principles should comprise of.	• What sustainability principles have been used to guide more sustainable outcomes at ski resorts? • What are the strengths and limitations of these principles? • What additional sustainability principles are needed?	Sustainable Ski Resort Discussion Contacts
3. <u>Vision of a Sustainable BMR</u>: Need case study specific information that explores and contributes to the understanding of what constitutes a sustainable ski resort.	• How does BMR affect the well being of the local community and the biophysical environment? • What is your understanding of a sustainable ski resort? • Why do you think it is important for ski resorts to be corporate leaders in sustainability?	Case Study Contacts
4. <u>Present Outcomes of Decision-making at BMR</u>: Need information that demonstrates the present outcomes of decision-making at BMR.	• What are BMR's sustainability achievements? • What are BMR's sustainability challenges? • What are BMR's sustainability priorities? • What changes are needed to make BMR more sustainable?	Case Study Contacts
5. <u>Use of Sustainability Principles to Guide More Sustainable Outcomes at BMR</u>: Need information that explores what the sustainability principles should comprise of.	• What sustainability assessment tools does BMR use to guide decision-making towards more sustainable outcomes? • What are the strengths and limitations of these tools? What is missing from the tools? • Are the tools widely implemented across the resort? If not, what challenges exist?	Case Study Contacts

Warm-up Question:
    • Acquire/Verify contact information, i.e. work position and responsibilities
 	
Closing Questions:
    • If you were doing a study of this kind, what do you think is important?
    • Are there any questions that I should be asking that I have missed?
    • Who would you recommend be interviewed as part of this research?		

Appendix B: Invitation Letter

[Insert date]

Dear [insert potential study participant name]:

This letter is an invitation to consider participating in a thesis study entitled: "The Development and Application of Sustainable Ski Resort Principles: conducted by myself, Tania Del Matto, a candidate for a Masters in Environmental Studies at the University of Waterloo under the supervision of Professor Mary Louise McAllister and Professor Ian Rowlands. I would like to provide you with more information about this thesis and what your involvement would entail if you decide to take part.

As you know, ski resorts have faced increasing pressure from government agencies, non-governmental organizations and the public to incorporate sustainability strategies into their business, because their development and activities have the potential to pose large consequences for sustainability. Ski resort activities such as ski hill operations, lodging, food services, travel incurred by guests, and ski resort expansion result in the use of significant amounts of energy, water and materials and can generate negative impacts to the well-being of the biophysical environment and human communities in which ski resorts reside.
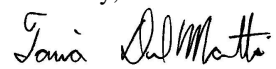
For the purpose of this study, a set of sustainability principles will be developed to assist in providing guidance towards more sustainable outcomes at ski resorts. Without a set of guiding sustainability principles, it is more likely that the business' decisions will lead to unsustainable outcomes. The application of sustainability principles to ski resorts will reveal the implications for change that are needed for ski resorts to move towards sustainability. For further information please refer to the attachment on the study background and objectives or contact me directly.

Participation in this study is voluntary. It will involve an interview of approximately 30 – 45 minutes in length to take place by telephone. You may decline to answer any of the interview questions if you so wish. Further, you may decide to withdraw from this study at any time by advising the researcher. Shortly after this interview has been completed, I will send you a copy of the transcribed interview notes to give you an opportunity to confirm the accuracy of the conversation and to add or clarify any points that you wish. All the information you provide me will be kept confidential. In no circumstances will your name appear in any documents resulting from this thesis. Any use of quotations will be done so anonymously, in a manner whereby the information you provide will be attributed to group affiliation (i.e. academic, member of ski resort industry). Data collected during this thesis will be retained for up to a year within my secured home office under my control and then destroyed. No one will have access to the interview data other than myself. There are no known or anticipated risks to you as a participant in this study.

If you have any questions regarding this thesis, or would like additional information to assist you in reaching a decision about participation, please contact me at; 519-886-6985 or by e-mail at: tdelmatt@fes.uwaterloo.ca. You can also contact my thesis supervisors, Professor Mary Louise McAllister at (519) 888-4567 x5614 and Professor Ian Rowlands at (519) 888-4567 x 2574 or email at: mlmcalli@fes.uwaterloo.ca / irowland@fes.uwaterloo.ca. Otherwise, I will telephone you within a week to discuss the study with you and ask if you are interested in being interviewed. This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at: (519) 888-4567 Ext. 6005.

We hope that the results of this thesis will be of benefit to the ski resort industry and its stakeholders, as well as the broader research community. I look forward to speaking with you and thank you in advance for your assistance.

Sincerely,

Candidate for MES at University of Waterloo (Environment and Resource Studies)
Tel. (Home Office): 519-886-6985
E-mail: tdelmatt@fes.uwaterloo.ca

Appendix C: Thesis Backgrounder

THE DEVELOPMENT AND APPLICATION OF SUSTAINABLE SKI RESORT PRINCIPLES

<u>Thesis Background and Objectives</u>

Sustainability involves ecological and human considerations and implies changes for the long-term viability of ecology and human society. Sustainability principles play a role in defining what constitutes a sustainable organization as they provide a vision on what must be achieved at regional and global levels across a breadth of human activities.

Ski resorts have faced increasing pressure from government agencies, non-governmental organizations and the public to incorporate sustainability strategies into their business, because their development and activities have the potential to pose large consequences for sustainability (Gill, 1991; Todd and Williams, 1996; Williams and Gill, 1999; Hudson, 2000). Ski resort activities such as ski hill operations, lodging, food services, travel incurred by guests, and ski resort expansion result in the use of significant amounts of energy, water and materials and can generate negative impacts to the well-being of the biophysical environment and human communities in which ski resorts reside.

For the purpose of this thesis, the development and application of sustainable ski resort principles helps to understand and study the sustainability of ski resorts. The sustainable ski resort principles represent the key requirements needed for ski resorts to progress toward sustainability and provide guidance towards more sustainable outcomes at ski resorts.

<u>This thesis will</u>:
Examine rationale for sustainable ski resort principles.
Develop a set of sustainable ski resort principles using an integrated systems approach to sustainability.
Perform an ideal type analysis to reveal where the current understanding of sustainable ski resorts falls short of the requirements advocated by the sustainable ski resort principles.
Conduct an ideal type analysis between the current conditions and trends at Blue Mountain Resort and the ideal state as expressed by the sustainable ski resort principles.
Consider what opportunities might be pursued or what obstacles need to be overcome for Blue Mountain Resort, and possibly for other ski resorts, to move closer to the idealized model of a sustainable ski resort.
Make recommendations for improving future efforts.

<u>Rationale</u>:
The rationale for this study is derived from three major premises: ski resorts are presently unsustainable; ski resorts must operate in a sustainable manner; and, a set of sustainable ski resort principles can be used to assist in providing guidance towards more sustainable outcomes at ski resorts.

<u>Benefits of Participating in this Project</u>:
Participants could benefit from this research for their own purposes as a compilation of expert opinions will be gathered and analyzed. The thesis will include this information and all other relevant findings which could be helpful to participants for their own work. The final set of sustainable ski resort principles are intended to help ski resort operators and stakeholders, in providing guidance towards more sustainable outcomes at ski resorts. This work opens opportunities for practitioners and stakeholders to use these principles and consider how a ski resort might go about narrowing the gap between the goals of sustainability and current practice.

This work aims to make two significant theoretical contributions. First, it will add value to the sustainability debates in what constitutes a sustainable organization. Second, the thesis will explore the practicality and limitations of applying sustainability principles that operate on an integrated systems approach. This work will add value to the broader debate on the strengths and limitations of an integrated systems approach to sustainability.

Participant Selection

Participants interviewed will be from the following areas:
• Ski Resort Industry (i.e. associations, ski resorts and other industry players)
• Academia
• Environmental and Community Non-Governmental Organizations
• Government / Public Agencies
• Consultants

Format for Participation

Participation in this study will involve an interview. The interviews will consist of open-ended and structured questions.   The interview length will be 30 to 45 minutes and will be recorded through note taking. All participants will receive a copy of the interview notes for review and editorial comments.

Thesis Contact:
Tania Del Matto, Candidate for Master of Environmental Studies at the University of Waterloo
Tel.: 519-886-6985
E-mail: tdelmatt@fes.uwaterloo.ca

Appendix D: Consent Form

I agree to participate in a study being conducted by Tania Del Matto, MES candidate from the University of Waterloo under the supervision of Mary Louise McAllister and Ian Rowlands. I have made this decision based on the information I have read in the Information Letter and the Thesis Backgrounder document. In addition I have had the opportunity to receive any further details I wanted about the thesis.   I understand that I may withdraw this consent at any time without penalty by telling the researcher.

I also understand that this research has been reviewed by, and received ethics clearance from the Office of Research Ethics at the University of Waterloo, and that I may contact this office if I have any concerns resulting from my involvement in the thesis.

I authorize that the information I provide for this thesis can be attributed to group affiliation.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this thesis.

   YES   NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research
   YES   NO

Participant name (please print): _____

Participant Signature:_____

Witness Signature: _____

Date: _____

Please fax back to: 519-337-3486

Appendix E: Interview Contact Summary Form

Interview conducted: ___ via telephone   ___ face-to-face

Interview date: _____

Type of interview category and role: _____

1.   What were the main themes that arose during this interview?

2.   Summarize the information collected (or unable to collect) on each of the interview questions posed to this contact.

3.   List anything else that arose as salient, interesting, illuminating or important in this contact (i.e. reflective remarks).

4.   What new (or remaining) target questions do you have in considering the remaining key informants?

        (Interview Contact Summary Form revised from: Miles and Huberman, 1994)

Appendix F: NSAA's Environmental Charter of Principles

I. Planning, design and construction:

- Engage local communities, environmental groups, government agencies and other stakeholders in up front and continuing dialogue on development plans and their implementation.
- Assess environmental concerns and potential restoration opportunities at local and regional levels
- Plan, site and design trails, on-mountain facilities and base area developments in a manner that respects the natural setting and avoids, to the extent practical, outstanding natural resources.
- Emphasize nature in the built environment of the ski area.
- Make water efficiency, energy efficiency and clean energy use and materials efficiency priorities in the design of new facilities and the upgrading of existing facilities.
- Use high-density development of clustering to reduce sprawl, provide a sense of place, reduce the need for cars and enhance the pedestrian environment.
- Meet or exceed requirements to minimize impacts associated with ski area construction.

II. Operations

Water Resources

Water Use for Snowmaking
- Optimize efficiency and effectiveness of water use in snowmaking operations.
- Conduct snowmaking operations in a manner that protects minimum stream flows and is sensitive to fish and wildlife resources.

Water Use in Facilities
- Conserve water and optimize efficiency of water use in ski area facilities

Water Use for Landscaping and Summer Activities
- Maximize efficiency in water use for landscaping and summer activities

Water Quality Management
- Strive to exceed water quality-related requirements governing ski area operations.

Wastewater Management
- Manage wastewater in a responsible manner.

Energy conservation and Clean Energy

Energy Use for Facilities
- Reduce overall energy use in ski area facilities
- Use cleaner or renewable energy in ski area facilities
- Strive to exceed energy standards in new or retrofit projects

Energy Use for Snowmaking
- Reduce energy use in snowmaking operations
- Use cleaner energy in snowmaking operations

Energy Use for Lifts
- Reduce energy use in lift operations
- Use cleaner energy in lift operations

Energy Use for Vehicle Fleets
- Reduce fuel use in vehicles used for ski area operations
- Use cleaner fuel where possible

Waste management

Waste Reduction
- Reduce waste produced at all ski area facilities

Product reuse
- Reuse products and materials

Recycling
- Increase the amount of materials recycled at ski areas.

Potentially Hazardous Wastes
- Minimize the use of potentially hazardous materials, the generation of potentially hazardous wastes and the risk of them entering the environment.

Fish and wildlife
- Minimize impacts to fish and wildlife and their habitat and maintain or improve habitat where possible

Forest and vegetative management
- Manage effects on forests and vegetation to allow for healthy forests and other mountain environments

Wetlands and riparian areas
- Avoid or minimize impacts to wetlands and riparian areas, and offset unavoidable impacts with restoration, creation or other mitigation techniques

Air quality
- Minimize negative impacts to air quality.
- Reduce operations-related air pollution and greenhouse gas emissions as feasible.

Visual quality
- Create built environments that complement the natural surroundings.
- Explore partnerships with land conservation organizations and other stakeholders that can help protect open lands and local viewsheds.

Transportation
- Ease congestion and transportation concerns.

III.   Education and outreach
- Use the natural surroundings as a forum for promoting environmental education and increasing environmental sensitivity and awareness.
- Develop outreach that enhances the relationship between the ski area and stakeholders to ultimately benefit the environment.

Appendix G: The Ski Area Citizens Coalition's Environmental Scorecard

1. Maintaining Ski Terrain Within the Existing Footprint (30 points)

2. Preserving Undisturbed Lands from Development (28 points)

    a. Maintaining Development or Parking Lot Construction Within Currently Disturbed Lands

    b. Avoiding Road Construction on Undisturbed Land

3. Protecting or Maintaining Threatened, Endangered, Sensitive, or Candidate Species and Their Habitat (22 points)

4. Preserving Environmentally Sensitive Areas (30 points)

    a. Protecting/Preserving Wetlands

    b. Protecting/Preserving Old Growth

    c. Protecting/Preserving Unique Geological Formations

    d. Protecting/Preserving Roadless Areas

5. Conserving Water and Energy by Avoiding New Snowmaking (20 points)

6. Protecting Water Quality (12 points)

7. Opposing/Supporting Environmentally Sound Policy Positions (10 points)

8. Promoting and Implementing Recycling, and Water, Land and Energy Conservation Strategies (37 points)

9. Minimizing Traffic, Energy Use, Emissions and Pollution (29 points)

Total Points = 218 points

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