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Foreword

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Abstract

In this 21st century it is undeniable that ski tourism is facing the challenges raised by the phenomenon of climate change. As a matter of fact, research has largely recognized the effect of global warming that makes the ski industry less and less attractive. The phenomenon of climate change within such tourism context is extremely complex and therefore both ski management and research are strongly recommended to focus on sustainable tourism development, and further to cooperate together. Ski industry must address the challenge to provide environmentally friendly services in order to satisfy both the demand and different group of pressure. Research needs to allocate great efforts to address the challenge raised by the very complexity of such issue.

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1. Introduction

1.1. Norway & the issue of climate change

Worldwide the 21st century is facing the problem of global warming. As in most European countries, debates and regulations concerning the reduction of global carbon emissions have become considerably significant in Norway for the past two decades. Norway is strongly concerned about the phenomenon of climate change indeed, and therefore both its population and its government are involved (Higham & Cohen, 2010). The Norwegian government, whose final goal is to become an entire carbon neutral economy, has recently started to implement strategy and has committed to reduce its CO₂ emissions in an extensive manner by 2030. In order to reach that goal, Norway notably invests large amount of money in renewable energy and new technology research (Gössling, 2009). The Organization for Economic and Co-operation and Development (OECD, 2010) pointed out that “Norway has long been a key promoter of environmental and social sustainability as well as sustainable economic growth as essential objectives of economic policy. The (...) current strategy for sustainable development into the 2008 budget documentation was (...) a sign that it should be central to all policy making” (OECD, 2010). OECD (2010) even claimed that Norway could be a valuable example for other countries.

1.2. Norway & sustainable tourism development

The Nordic Council of Ministers Tourism reported about the tourism industry:

“Its products are sold using images of a clean nature, high standards of living and a unique cultural heritage. At the same time, many of its market are becoming increasingly aware of the pressures that the tourism industry can have on these values.

The Nordic countries are also under pressure from the highest political levels in the

international arena to develop tourism policy that takes into account the need to preserve the sustainability of these values, in other words a sustainable tourism development” (Nordic Council of Ministers Tourism Ad Hoc Working Group, 2003, p.2 in Hall, Müller, & Saarinen, 2009, p. 251).

The above quotation reflects rightly the extent of the challenge and Norway is no exception. Although the Norwegian government has recognized the sector of tourism as an important challenge and aims at a “sustainable development Norway” (Gössling, 2009, p.26), it does not allocate policy to sustainable tourism development. On the other hand, the industry itself seems concerned to provide sustainable tourism services, especially with the issue of transport as described in Høyer (2000). On top of that, tourists themselves seem to be willing to adapt their domestic leisure activity to the changing environment. As a matter of fact, in their study assessing the relevance of climate change on Norwegians long-haul air travel to New-Zealand, Higham & Cohen (2010, p. 7) came with the conclusion that “Norway may be considered a vanguard tourism market in term of climate concern”. They also concluded that Norwegians did not deny the existence of climate change. Nonetheless, there was a gap between their attitudes and their behaviours. In other words, Norwegian people were aware and agreed that human activity contributes to climate change but would rather sacrifice their short-haul travel than their once life experience in New-Zealand. Under those circumstances, this paper raised the question whether or not skiers in Norway are concerned about the phenomenon of climate change while travelling to ski destinations.

1.3. Challenges for winter & ski tourism

Since the late 1980's, winter and snow based tourism have faced a series of challenges in European Alpines and Northern American destinations (Hinch & Higham, 2004). International findings reported that “economic recession, increasing media of accidents,

global warming and the environmental lobby all took their toll on public opinion” (Hudson, 2000, p. 174), and therefore it gave rise to important managerial issues for tourism businesses. For instance, ski tourism is certainly the most significant example to discuss, and it illustrates why destination’s operators need to focus on sustainable tourism development.

The ski industry which in most Alpine areas is a large activity and represents considerable source of incomes, has been particularly affected indeed. As a consequence, it has been the focus of many academic and scientific researches in many European and Northern America regions for the past two decades as well. As a matter of fact, global ski market has undoubtedly reached the mature phase of its life cycle (Flagestad & Hope, 2001; Franch, Martini, Buffa, & Parisi, 2008; Hinch & Higham, 2004; Matzler, Füller, & Faullant, 2007; Tuppen, 2000; Unbehaun, Pröbstl, & Haider, 2008), while global competition has increased (Matzler, et al., 2007; Unbehaun, et al., 2008). In some ski destinations, the amount of skiers, the number of repeated visitors, and the length of stay has decreased (Weiermair & Fuchs 1999 in Matzler, et al., 2007). Last but not least, ski tourism is to a very large extent challenged by environmental issues and the phenomena of climate change, global warming, and ozone problems.

Ski tourism and climate change have a complex two-way relationship. On one hand ski industry is threatened by global warming which according to research leads to changing snow cover patterns; while on the other hand, ski tourism largely contributes to climate change (Gössling, 2009). On top of that, human beings have started wondering whether or not their activity causes climate change. As a result, it generated what seems to be a growing concern for environmentally friendly products and services, and led to green consumerism in the Western society. The latter is actually giving the impression to move towards green values

indeed, but the segmentation of green consumers is difficult and little and complex research gave very contradictory results.

The phenomenon of climate change together mixed with market conjuncture gave rise to great challenges. Indeed, ski businesses must adapt to the changing market and especially they must adapt to the changing demand patterns while considering environmental issues. In fact, travellers in general and skiers in particular became more mobile, more flexible, and look for new experiences. Tourists and recreationists are willing to travel further in order to fulfil their needs and expectations (König, 1998; Unbehaun, et al., 2008). In sum, within the context of sustainable tourism development research, many authors raised the question of whether or not ski tourism will remain a sustainable economy in the future.

1.4. Ski tourism is twice challenged by climate change

As suggested earlier, ski tourism is particularly influenced and affected by environmental issues such as global warming and ozone depletion. In fact, it is well recognized in research to date that ski tourism is strongly and twice challenged by the phenomenon of climate change.

To begin with, ski tourism – and the global ski market itself –, is very sensitive to climate and weather variations, and is facing snow cover changing patterns (Dawson & Scott, 2007; IPCC, 2001, 2007; Müller & Weber, 2008; Shih, Nicholls, & Holecek, 2009; UNWTO, 2003). More than a decade ago, (Koenig & Abegg, 1997) foresaw that “the first snowfall of the season would be delayed, would melt prematurely and the duration of the snow cover would be reduced by one month compared to the present conditions, and at the same time, the snow deep would be considerably reduced” (p.49). Few years later, Elsasser & Bürki (2002) reported that the ski market is at time confronting snowfall decrease, melting glaciers – which are also a direct threat for summer ski –, warmer and rainy winter, and skiing shorter season

length. In addition, Hall, Müller, Saarinen, (2009) explicated that climate change is likely to lead to change in precipitation patterns which will have both impact on the availability of snow and biodiversity.

Worldwide, many researchers concluded that problems have started occurring due to lack of snow during several winters, and together with a much matured market and an increasing global competition, have affected many ski destinations in the world. According to several authors (Weiermair & Fuchs 1999 in Matzler, et al., 2007; Unbehaun, et al., 2008) the dilemma for ski resort operators is that tourists are willing to travel further to holiday destinations that can guarantee snow. In clear, since skiers' satisfaction strongly depends on good snow condition (Breiling & Charamza, 1999), ski operators must therefore address the huge challenge to overcome the problem of snow deficient winter at the same time as remaining and moving towards sustainability.

The other challenge raised by the phenomenon of climate change is that ski tourism development is a threat for the natural environment and contributes to global warming. From a global perspective, the preparation of ski slopes, the installation of ski lifts, artificial snow technology and equipment, development of infrastructure, and superstructure development necessary for ski destinations have negative consequences on the environment (Holden, 2008). In general the construction of ski lifts, cable cars, new roads, and avalanche fences generates pollution – air, water, noise, visual – erosion and deforestation, which has ever more negative consequences on fauna and flora for instance (Gössling, 2009; Holden, 1998; Hudson, 2000). The result is that the enlargement, and development of ski resorts is a contentious debate since it creates conflicts and issues between environmentalists and ski operators (Holden, 1998). All in all, within the context of the climate change going on today mixed together with market conjuncture, ski resort operators are urged to provide more

environmentally friendly services while considering the demand's needs of course. The latter varies from one particular destination to another.

1.5. Small Vs high resorts

From a global perspective, the ski market is spread between small and medium resorts at low altitude in opposition to destinations at higher altitude, and research has largely shown that the global ski market in both types of resorts is sensitive to climate change, yet to different extents. As a matter of fact, research has further concluded that climate change and changing snow cover patterns affect ski destinations in different manners. For instance, small and individual ski resorts lose skiers during snow deficient winters while higher resorts therefore take advantage of the lack of snow in smaller resorts and gain more skiers. In other words, Unbehaun, et al., (2008) described that “ (...) in winter with less snow, destinations in high altitude become more important (...)” (p.45), implying that ski destinations at lower altitude suffer more from snow deficient winter than destination in higher altitude (Koenig & Abegg, 1997; König, 1998; Müller & Weber, 2008). For this reason it would seem that tourists would likely stop skiing in small resorts and concentrate in higher destinations. As a consequence, the latter become challenged to welcome a bigger amount of skiers, thus in the most sustainable manner possible. Scott, McBoyle, Minogue & Mills (2006) argued that “climate change will create winners and losers in the ski industry of eastern North America” (p.393). One should however notice that the decision to go skiing in a low or high ski destination – snow deficient winter or not – almost certainly varies depending on tourists and their individual skiing level. As an example, low skills skiers would likely keep skiing on small and medium resorts, even though snow cover conditions are not optimal. This leads to the fact that “the impact of (...) snow-deficient winters on ski resorts (...) differed greatly among regions” (Koenig & Abegg, 1997, p. 47) (See also Elsasser & Bürki, 2002; Müller &

Weber, 2008). In fact, it means that ski resort's sustainability is challenged in a different way according to each destination's characteristics such as altitude and segment market.

In sum it seems to research that climate change will lead to new patterns of favoured and disadvantages ski tourism regions. As a consequence, research has not been able to draw general conclusion about ski resort's – non – sustainability, and it would make sense to focus on one particular destination while investigating whether or not it will remain a sustainable economy in the future.

1.6. Demand side matters

Research in sustainable tourism development in Alpine areas has to a large extent published about the negative impact of snowfall decrease which makes ski resorts less and less attractive (Gössling, Bredberg, Randow, Sandström, & Svensson, 2006). Nevertheless, such research is also in its early stage and has mainly focused on the supply side (Elsasser & Bürki, 2002; Müller & Weber, 2008). Dawson & Scott (2007) explained that “the impact that climate change is expected to have on supply side of the tourism industry has received far greater attention than its companion demand inquiries” (p.552). A growing number of studies have however stretched the importance to focus on the demand side, and the present paper attempts to explore skier's perception of the phenomenon of climate change through an analysis of their attitudes and behaviours.

First of all, demand's needs and expectations are constantly changing (Zhenhua, 2003), and it is therefore necessary for the supply side to keep itself updated about what those needs and expectations are. Müller & Weber (2008) stated that it is “little explored, how tourism demand reacts to the changed conditions” (p.70), and it is especially true within the ski industry. According to Müller & Weber (2008) and Unbehaun, et al., (2008) it is even more important to explore tourists attitudes and behaviours because it will determinate if

destinations will succeed. Unbehaun, et al., (2008, p.37) explained that “it is the preference of the winter clients for ski destinations that will determine the destinations’ future prospects” – whether or not skiers are interested in environmentally services will determine the future success of an environmentally friendly ski resort – “therefore, a demand oriented investigation about preference for various supply side variables is important”. Finally, Koenig & Abegg (1997) concluded that “it is necessary to examine how (...) tourists perceive the occurrence of climate change and to investigate how they think they would adapt” (p.57). In fact, Divisekera (2010) introduced that “both the sustainability and growth of the tourism service sectors depend on the level of demand” (p.118).

1.7. Purposes & objectives

This research paper raises the three following research questions. (1) To what extent skiers are aware / concerned about the phenomenon of climate change? (2) To what extent does the phenomenon of climate change influence skiers’ behaviour? (3) What changes can skiers anticipate in the future, and what will be required to make them commit to these changes?

The purpose of the study is to understand skiers’ perception of the phenomenon of climate change by analysing their attitudes and behaviours. The study presents the four following objectives. (1) Identifying skiers’ environmental attitudes with regard to the phenomenon of climate change. (2) Identifying and understanding skiers’ environmental behaviours as it relates to the issue of climate change (3) Identifying potential – present and future – changes in skiers’ behaviour as it relates to climate change. (4) Understanding what will be required to make skiers commit to these changes. This study intended to gain an in-depth understanding of skiers’ perception of the phenomenon of climate change as it relates to their skiing behaviour.

The present paper is divided as follows. Chapter two presents the research context of the study and, based on a literature review argues why the study should be undertaken at this time. Then, the third chapter describes the methodology, and gives explanation for the choice of such a method while giving the limitations to the study. The fourth chapter describes the data collection and presents the results of the research. The next chapter discusses the research questions and presents strengths and weaknesses of the study. Finally, chapter six gives recommendations and concludes the paper.

2. Theoretical background

2.1. Introduction

Concerns about the environment have increased significantly in public debate, scientific and academic research, non-governmental organizations (NGO's), and both national and international governmental priority policies (Gössling, 2009; Holden, 2008; UNWTO, 2007). Worldwide, human beings have started wondering whether or not their activity causes climate change, global warming, and ozone depletion, and what are the consequences for the environment.

For the purpose of this particular paper, the environment referred to recreationist's destinations where skiers go to, and with the society they come from, involving their cultures, and values. Regarding to tourism, it is tightly connected with the natural environment including natural resources such as water or snow, landscapes such as mountains and seas, fauna and flora (Holden, 2008).

Within the context of sustainable tourism development research, a series of harmful impacts that the sector of tourism has upon the environment and its natural resources have been identified and therefore the tourism industry has been recognized has a large contributor

to climate change (Gössling, 2009). Tourism is a complex system of embedded systems (Hall & Higham, 2005; Holden, 2008) and this gives explanation why some tourism sub-sectors are more harmful than others, and some are more or less sensitive. For instance, few authors (Breiling & Charamza, 1999) raised the question of whether or not ski tourism will remain a sustainable economy in the future if climate change and global warming continue. Both research in sustainable tourism development and climate change are in their early stage (Stoll-Kleemann, O'Riordan, & Jaeger, 2001) and consequently research agreed that further investigation of consumer behaviour and tourist demand is needed to find it out (Bergin-Seers & Mair, 2009; Zhenhua, 2003). It seemed appealing to the author to investigate skier's behaviour in such an environment oriented society as Norway.

2.2. Ski industry in Norway in a global context

In the first decades of ski areas development skiing industry in Norway, as for both the European and the American market, was a domestic leisure activity reserved for the elite society (Hall, Müller & Saarinen, 2009; Hinch & Higham, 2004).

“In the 1890's a new type of traveller appeared in the Alps more intent upon hedonism than recuperation, with winter sports, including ice-skating and skiing, becoming fashionable and popular. The mountains became increasingly popular with upper-class Victorians from the beginning of the nineteenth century, as an escape from the growing urbanised areas of the Industrial Revolution” (Holden, 2008, p.35).

Nowadays, the ski industry is a global mass tourism market and is estimated at 70 million skiers worldwide (Hinch & Higham, 2004). The rapid expansion of the sector of transport has most certainly contributed to the development of international ski industry (Gössling, 2009). Hinch and Higham (2004, p.97) argued that “the ski market has changed as people travel more as ski companies become multinationals”. As Baker (1982, in Hudson,

2008, p.35) illustrated “the popularity of the European Alps has increased with the expansion of the railroads into Alpine valleys”.

The expansion of the ski industry as a recreation activity is marked by four successive phases. The first phase of ski tourism development started with “the growth of winter activities and tourists numbers (...) in the 1920’s and 1930’s when the first downhill skiing resorts, lifts and others facilities were developed in the Nordic countries, especially in Finland, Norway and Sweden” (Nilsson, 2001 in Hall, Müller, Saarinen, 2009, p.224). A second phase started in the 1960’s and early 1970’s with the development of infrastructure instigated by a growth in domestic and international tourists in Europe who became more mobile, and who had more free time to enjoy themselves. The third phase which was the fastest and the most visible one was in the mid 1980’s with the growth of mass-scale resort infrastructures, increasing international demand and capital investments, especially in Finland, Norway and Sweden which “provided natural advances to winter tourism development such as topography and a long, snow-covered season with relatively good accessibility” (Hall, Müller, & Saarinen, 2009, p.225). At the same time, tourism development was supported by regional policy. For about a decade “many traditional winter tourism destinations have (...) faced stagnating markets” (Flagestad & Hope, 2001 in Hall, Müller, Saarinen, 2009, p.225), which is obviously due to changing demographics such as ageing of the population and segment market, as there is now a larger offer of international tourism products, while tourist are extremely mobile.

Winter and snow based tourism have long history and tradition in Nordic regions. Norway is no exception, and saw its first form of ski tourism in the mid 19th century (Hall, Müller, & Saarinen, 2009). Norway is more famous for cross-country skiing than downhill skiing, yet the number of alpine construction has significantly grown between 1980 and 1995

(Stølen, 1995 in Hall & Higham, 2005). Moreover, the volume of snowmaking equipment has increased as well since there was a growing demand for longer ski seasons.

2.3. Society, tourism and the environment

Western society did begin to be environmentally aware in the 1960's with notably the Torrey Canyon oil disaster (Carson, 1962 in Holden, 2008). At that time international tourism was in its infancy (Hudman, 1991 in Holden, 2008). Today, international tourism is certainly the fastest and the largest growing economic sector (Gössling, 2009) and involved over 800 million international arrivals in 2006 (Holden, 2008). UNTWO (2006) projected double number of international arrivals by 2020. Besides global warming is nowadays an issue of global concern. As a consequence, Holden (2000) who continued the relationship between society, environment and tourism "chronology" of Hudman (started in 1991), argued that in 2000's there is "growing acknowledgment in the tourism industry and government that climate change will threaten the success of some tourism destinations, especially small islands susceptible to a rise in sea-level, and lower-altitude downhill ski resorts in which snowfall is expected to become marginal" (p.72). Furthermore "the scientific community is virtually united in its view that the global temperature rise is a consequence of human activities" (Hudman, 1991 in Holden, 2000) – which is largely matter of debate though (Stephens, 2008; Lenzen, 1999/2000, McDaniels et al., 1996 (in Becken, 2004, p. 340).

The phenomena of climate change and global warming are strongly leading tourism destinations to move towards sustainable development management style. According to the World Tourism Organization (UNWTO, 2009) sustainable tourism development focuses on "the generation of social, economic and cultural benefits for host communities commensurate with global development interests, for ensuring the supply of quality tourism products and avoiding or reducing negative impacts upon the natural and socio-cultural environments".

Since the negative impact that the sector of tourism is having on the environment has been widely recognized, the tourism industry itself is willing to develop its offer in the most sustainable manner as possible. The following table (see table 1 below) reports the negative environmental consequence of tourism according to Holden (1998, p.74) who further argued that:

“An integral part of the tourism system is tourists and local people. The behaviour of both groups will be highly influential in determining the extent, to which the consequences of tourism upon the non-human world are either negative or positive. The behaviour of tourists to the culture of the destination they are visiting will also be influential in determining whether tourism is viewed as a positive or negative force for change by local people” (Holden, 2008, p.88).

Finally, in order to optimized their development and become as much sustainable as possible, ski destinations are strongly recommended to consider a multidisciplinary approach which involves different fields of research which are tourism in general, urban and sport geography, sport management, sport marketing, the sociology of sport, economy, and consumer behaviour both in term of space and time (Hinch & Higham, 2004). The present study focuses on consumer behaviour – and demand side of the market.

Table 1: The negative environmental consequence of tourism (Holden, 1998, p.74)

<i>Issue</i>	<i>Problems</i>	<i>Examples</i>
<i>Resource Usage:</i> Tourism competes with other forms of development and human activity for natural resources, especially land and water. The use of natural resources subsequently leads to the transformation	Some natural resources that tourism relies upon have characteristics of Common Pool Resources (CPR's). Thus there is a propensity for overuse. Indigenous and local people can be denied access to natural resource upon which they base their existence and	<ul style="list-style-type: none"> • Airport construction in tourism generating and destination areas such as London and Malta uses large areas of farmland • Draining of coastal wetlands in Kenya for hotel development • Loss of beach and coral reef ecosystems in the Caribbean • Deforestation of mountainsides associated with tourism in the European Alps and Himalayas

<p>of ecological habitats and loss of flora and fauna</p>	<p>livelihoods. Land transformation for tourism development can directly destroy ecological habitats and ecosystems. The use of resources for tourism involves an opportunity cost', as they are denied to other sectors of economic development</p>	<ul style="list-style-type: none"> • Lowering of the table water below the level of local wells as in Goa, India • Induced change to ecological habitats and a subsequent reduction in the number of species of flora and fauna as in Scotland and the European Alps
<p><i>Human behaviour towards the destination environment</i></p>	<p>Local people encouraged by the revenues to be gained from tourism, and tourists, may display ignorance and / or disregard for the environment and indulge an inappropriate behaviour. This can lead to a range of consequences for the physical and cultural environments</p>	<ul style="list-style-type: none"> • Disruption to eating and breeding patterns of wildlife animals in the Maasai, Kenya • Local people breaking off coral to sell to tourists off the Mombassa coast • Dynamiting of fish in the Amazon to provide entertainment for tourists • Tourists walking over coral in the Caribbean • Increased crime, prostitution and drug taking in many destinations • Offence caused in Muslim cultures by western tourists wearing inappropriate dress to visit mosques and other cultural sites
<p>Pollution</p> <ul style="list-style-type: none"> • Water • Noise • Air • Aesthetic pollution 	<p>A range of different types of pollution can results from tourism. This impact on different spatial scales from the local to the global. In destinations the effects of pollution are often associated with the level of tourism development and the degree of implementation of planning and environmental management controls</p>	<ul style="list-style-type: none"> • Problems of human waste disposal generated by tourism in the Mediterranean and the Caribbean • <i>Air pollution problems in the European Alps and the contribution of jet engine emissions to global warming and ozone problems</i> • Noise pollution of air balloons in the Serengeti Park in Africa • Many coastal areas such as in parts of the Mediterranean and the Caribbean have had their coastlines transformed by standardised construction of tourist accommodation and are indistinguishable from each other

2.4. Sustainability ski tourism development

“There is a concern nowadays about whether or not winter tourism can remain a sustainable economy if global warming and climate change continue” (Breiling & Charamza, 1999). Hence, ski industry being a significant source of outcomes in many Alpine regions of the world (Holden, 1998), it is of crucial importance to strive adapting to the matured and changing market. Studies concluded that ski industry either adapt to the changing market or switch its activity. As a consequence, ski resorts must address the challenge to adapt to their environment if it means to maintain past sources of incomes, at least. They must especially focus on more sustainable and environmentally friendly services. First, there is pressure from governments and environmentalists (Gössling, 2009; UNWTO, 2007). Second it seems that there is an increasing need and demand for green products and environmentally friendly services. Ski industry must respond to two different kind of pressure, one being as important as the other (Swarbrooke & Horner, 1999). On top of that, one should consider that “in any case, tourist destination and enterprises are demanded to constantly adapt to the new conditions and thereby not to neglect effort in climate protection” (Müller & Weber, 2008). Overall, sustainable development is vital to ski resort if it is meant to perpetuate.

Clearly, Hudson (1996 in Hudson & Ritchie, 2001, p.2) perceived sustainable ski tourism development as “an opportunity for resorts to gain a competitive advantage by positioning themselves as environmentally responsible”. Castle (1999 in Hudson & Ritchie, 2001, p.2) argued that there is “evidence of a new management style and new commitment to have skiing co-exist with the environment”. On the other hand, the question of green marketing has been questioned and criticized by few authors (Lansing & Vries, 2007; Zhenhua Liu, 2003). (Lansing & Vries, 2007, p. 77) raised the question whether or not “sustainable tourism is actually a new form of tourism or a clever marketing campaign to

provide corporations ethically more appealing wrapping paper for the same old toy”, in that case it refers to the matured ski market. Nevertheless, some researchers such as Hudson (2000) pointed out that ski resorts should definitely sell themselves as green resort under the condition that the market react positively. In his words “it makes sense to use the fact that “green sells” for marketing purpose, but only when the product labelling conforms to both consumer expectations and industry standards” (p.137). Holden (1998) agreed that it is especially applicable for individual resort where demand’s expectations needs to be fulfilled. This leads ski destinations to carefully understand skiers’ perception of the phenomenon of climate change as it relates to their attitudes and their behaviours. In sum, both businesses and academics need to consider that skier’s point of view matters, and undertake further investigation.

2.5. Ski tourism & the natural environment

In the first book which studied the international ski industry, Hudson (2000), explained that the main motivations behind skiing that have been identified by academic research over the years are the following: personal achievement, social aspects, enjoyment of nature and beautiful landscapes. Hall & Higham (2005, p.120) argued that “if climate change adversely affects the natural settings of mountains destinations (the loss of glaciers, special flora or fauna, increased fire and disease impacted forest landscape) the quality of the tourism product could be diminished with implication for visitation and local economies”. Ski tourism is highly dependent on natural resources indeed, with an indispensable presence of snow required, and the natural surroundings such as landscapes and mountains, and the quality of the air as well is important (Hinch & Higham, 2004; Holden, 2008; Hudson, 2000). Therefore, few authors (Hinch & Higham, 2004; Hudson, 2000) agreed that skiers are more sensitive to environmental issues since it influences the quality of their personal recreational

experience. (Hudson & Ritchie, 2001) further argued that skiers are more concerned about the environment than other sportsmen. On the other hand, Hudson (2000) concluded that “it is questionable whether or not the industry will ever really understand how to keep skiers interested and involved with the sport” (p.86).

According to the current situation of the ski industry, the relationship that ski tourists have with the natural resources of their environment is in contradiction with the certainty that downhill ski and snowboard developments have increased impact on such natural resources and surroundings and reinforce the need for ski tourism to focus on sustainable tourism development (Hinch & Higham, 2004). Holden (2008) presented a list of issues appealing due to downhill ski (including snowboarding as well) (see table 2).

Table 2: The effect of downhill skiing upon the environment (Holden, 2008, p.82)

<i>Type of development</i>	<i>Processes</i>	<i>Results/Consequences</i>
Piste preparation	Removal of vegetation and boulders to a depth of 20cm to allow snow accumulation Deforestation of the mountainsides	<ul style="list-style-type: none"> • Ecosystem damage, e.g. loss of Arctic-alpine vegetation • Visual pollution – loss of aesthetic quality, especially in the summer • Increased avalanche risk • Increased propensity for mud slides • Disturbance of wildlife, e.g. Black Grouse in the French Alps, Ptarmigan and Red Grouse in the Scottish Highlands
Lift installation	Early resorts built roads up the mountainsides to transport pylons Use of heavy cables to support tows and chairs	<ul style="list-style-type: none"> • Ecosystem disruption – destruction of vegetation ; disturbance to wild life and loss of habitats • Death of birds colliding with cables, e.g. Black grouse in the French Alps; and the red Grouse and Ptarmigan in the Scottish Highlands
Artificial snow making equipment	Increasing use of artificial snow cannon which involves great water usage, e.g. to produce one hectare of skiing surface requires	<ul style="list-style-type: none"> • Increased water usage – diversion of water and lowering of the water table • Energy consumption • Noise pollution

	200,000 litres of water	<ul style="list-style-type: none"> • Use of additive to aid crystallisation of the water into snow, leading to contamination of the soil
Increased infrastructure development	Building extra roads to transport skiers Hydro-electric schemes	<ul style="list-style-type: none"> • Land use transformation; noise and air pollution • Increased levels of salination causing loss of flora e.g. the Australian Alps
Superstructure development necessary for destinations	Construction of hotel development and other usual amenities such as cafés, restaurants, bar	<ul style="list-style-type: none"> • Land use change • Air and water pollution

Holden (2008, p.81-83) gave further detailed and argued that:

“The development of mountains tourism requires the construction of hotels, apartments and associated infrastructure, placing increased pressure of land resources and animal habitats. The removal of trees to create ski runs, besides resulting in a loss of habitat for wildlife, also means that rainfall falling on the mountain slopes is not absorbed in the same quantity as before. The removal of trees causes a loss of cohesion and stabilisation of the soil by the trees roots, and subsequently the mountain slope is more prone to slippage. The combined effect of increased amounts of water running across the surface of the slope, its weakened stability, and the force of gravity, has led to mountain areas becoming vulnerable to landslides”.

2.6. Snowmaker’s sustainability

Based on the UNWTO’s (2009) definition of sustainable tourism development quoted at the beginning of the current chapter, and reviewed publications, research has not agreed on ski resort sustainability in general, and has not agreed on the long term viability of artificial snow in particular. As reported in table 2, the development of ski resort gives rise to a series of environmental issues, and the issue of artificial snow making is particularly put in dispute among the body of research.

First of all, artificial snow is no viable from an environmental and ecological aspect. In fact, snow cannon requires huge amount of water which has several negative consequences as listed earlier in Table 2. In addition, rising temperature due to global warming will also endanger the snow production. On top of that artificial snow has ecological consequences when winter is over (Koenig & Abegg, 1997).

Second of all, artificial snow is not sustainable from an economic approach. The problem is that artificial snow is expensive to make, especially when the ski season is short. Scott, et al., (2006, p.394) believed that “when potential reductions in the ski season are combined with projected increases in snow-making costs, the sustainability of some ski operations could be jeopardized”.

Besides, one should note that the question of sustainability among ski resorts is complex and is depending on several factors such as location, altitude, size, economical situation and so forth. As expressed by Koenig & Abegg (1997), it gives the impression that artificial snow seems to be a rational adaptation strategy for maintaining snow cover in some regions such as “for smaller areas of the ski slopes which are congested or exposed to sunny conditions” (p. 55).

Last but not least, artificial snow success and long term sustainability also depends on skier’s satisfaction. As a matter of fact, research has given contradictory results regarding to skier’s long term satisfaction of artificial snow. This implies that research has not been able to draw general conclusion on how and to which extent snow cover changing patterns has affected and will affect ski resort destinations in a long term perspective. In other words, ski destination’s characteristic mixed together with the research approach, ski resort’s sustainability varies from one destination to another.

Shih, et al., (2009) concluded that snowfall decrease in Michigan, United-States, has a significant impact on downhill ski lift ticket sales. Although, whether or not ski resort's sustainability remains uncertain for some authors, (Dawson & Scott, 2007; Dawson, Scott, & McBoyle, 2009; Scott, et al., 2006) pointed out the fact that many studies has not considered snowmaking facilities while giving dramatic conclusion about ski resort long term viability. In fact, they agreed that adaptation strategy such as artificial snow and snowmakers seem reducing ski destination's vulnerability. Yet, several studies in Europe and Northern America revealed that artificial snow success varies according to different market. A study (Buckby, et al., 1993 in Koenig & Abegg, 1997) concluded that "Swiss tourists seem to be much more critical of artificial snow than for example ski tourists in Canada or in Australia" (p.55). Also, another study (Unbehaun, et al., 2008) reported that Viennese skiers rather go to ski destination where they will find bigger amount of natural snow. According to them, adaptation strategy in Vienne, Austria is "mostly accepted as compensation for a short time, but not for the whole winter holiday. Otherwise, a shift to another destination – also in other part of the world – is likely to happen (...) an increasing amount of artificial snow should not be focus in the marketing of a resort" he explained (p.45). This reinforces the fact that tourists are willing to extend their journey – i.e. travelling far away from home – in order to find what they seek for (König, 1998; Matzler, et al., 2007; Unbehaun, et al., 2008). Hinch & Higham (2004) argued that the lack of enthusiasm for artificial snow appeals because "the experiential value of the mountain environment which forms an important part of ski experience is not transportable" (p.123). On the other hand, Matzler, et al., (2007) believed that in the European Alps the preference for natural snow depends on skier's ski level.

In the United-States, Scott, et al., (2006) concluded that even though decreased snowfall shortens season length, snow makers are an efficient alternative to avoid an

economic breakdown, meaning that it does not significantly affect ticket sales. In fact, snow makers are so far the main alternative solution implemented by ski resort operators to stay competitive, and avoid an economic breakdown at least. Besides, Elsasser & Bürki (2002) argued that “climate change and global warming, together with international competition, have been used as the key arguments for constructing artificial snow-making facilities, as well as for extending existing ski runs and opening new ones in high alpine regions (at above 3000 meters above sea level)” (p. 255). Yet, many authors and research studies discuss artificial snow sustainability.

All in all, decision-making choice from both the demand and the supply side varies according to different markets. No matter what, ski industry must adapt to the changing market, preserve its natural resources and environment, and overcome the issue of snowfall decrease; and so far, artificial snow seems to be the only solution implemented to keep attracting skiers and avoid an economical breakdown.

2.7. Skier’s point of view matters

As the concerns for the natural environment are becoming more and more present as significant in the society, it seems that individuals are moving towards more sustainable and environmentally friendly attitudes, behaviours, and values (Holden, 2000). Therefore, environmental attitudes and environmental behaviours have received growing interest among science social and consumer behaviour research (J. A. Roberts & D. R. Bacon, 1997), and it is particularly true within the field of tourism research (Lee & Moscardo, 2005).

Holden (1998) explained that the most important thing that operators must consider in order to succeed while providing – green – services is to understand the demand’s needs expectations, and attitudes. It is needed to try to achieve a better understanding of skiers’ behaviours. “Subsequently, central to planning ski developments and providing visitor

management must be a better understanding of the needs of skiers and also an understanding of their attitudes to the environment in which they ski” Holden explained (p. 148). In more details, the first condition required to success with environmental product is identifying customers who are willing to pay more for an environmentally friendly product, according to Reinhart (1999, in Hudson and Ritchie, 2001). Yoon & Uysal (2005 in Matzler, et al., 2007) insisted with the fact that it is especially applicable for matured market such as the ski industry. “In increasingly saturated marketplaces, the success of a destination depends strongly on a thorough analysis of tourist motivation”. Moreover, Swarbrooke & Horner (1999) argued that “modern marketing is predicated on the idea that knowing your customer, and then anticipating and meeting their needs, is the key of success”. As Reinhart (1999, in Hudson and Ritchie, 2001) pointed out that whether or not willingness to pay lead to success, “(...) the challenge will be how to avoid a negative cycle between increasing operating cost, increasing charges for the visitors, followed by a decline in visitation (...), and willingness to switch from winter to summer tourism (Unbehaun, et al., 2008 p. 45). Hence, this corroborates the fact that deeper analyse of skier’s environmental attitudes and behaviour is required to understand their motivations and expectations while choosing a ski destination.

Hudson & Ritchie (2001) argued that skiers are more concerned about the environment than other sportsmen. Winter and ski tourism being highly dependent of good snow conditions, and enjoyable natural surroundings, it makes senses to assume that skiers are particularly sensitive to their environment as well as the phenomenon of climate change. According to Hudson and Ritchie (2001) skiers are likely to include environmental issues in their skiing decision making process, while choosing a destination for instance. In fact, environmental awareness should have a significant impact on skiing for the next decades, according to Sager (1996 in Hudson, 2000). Yet, individuals’ attitudes and behaviours are

complex to understand. In fact they are subjected to different variations according to a series of factors and phenomena, which are even more complex within the context of tourism which is discussed below.

2.8. Environmental attitude & behavioural research

In the context of the phenomena of climate change and global warming going on today, sustainable tourism development has received greatest attention in research the past twenty years. For many reasons, the emphasis has been put on environmental attitude and environmental behaviours. In general, a growing awareness among the lay public has been noted through research (Hudson, 2000) which has also identified the beginning of green consumerism in the late 1980's. Although the society gives the impression to move towards more sustainable values, individuals do not react the same way with regards to environmental values, and do not adopt the same attitudes and / or behaviours.

According to Roberts & Bacon (1997) many authors advocated that "individuals with a higher level of environmental concern should be more likely to engage in ecologically conscious consumer behaviour" (p.79). This is supported by Lee & Moscardo (2005) who reported that individual's knowledge would be correlated to attitudes, and that their attitudes would be correlated to their behaviours. According to them, this means that the more aware and informed individuals are, more likely to adopt a positive attitude towards the environment they become as well. Hence, while people have a favourable attitude to the environment, they are more likely to translate it into environmentally friendly behaviour. In other terms, they explained that environmental attitude – values and willingness to act – leads to environmental behaviour – concrete action. According to this theory, individuals should therefore become more knowledgeable about environmental issues such as climate change and global warming. However, whether or not individuals truly transfer favourable knowledge into positive

attitudes towards the environment and the latter into action, individuals' behaviour research is complicated and relies on a combination of factors.

The above explanation of the phenomenon is rather too simplistic according to Fishbein & Manfredo, 1992; McDougall & Munro, 1994 (in Lee & Moscardo, 2005). According to Hines, et al., (1987 in Lee & Moscardo, 2005, p. 548), environmentally responsible behaviour also depends on several variables which are the following: (1) Knowledge of issue (2) Knowledge of action strategies (3) Locus of control, which refers to an individual's perception of whether or not he or she has the ability to bring about change through his or her own behaviour (4) Attitudes (5) Verbal commitment, or an expressed intention to act upon an environmental problem (6) Individual sense of responsibility. Therefore, they further developed "The Model of Responsible Behaviour" (see figure 1) where they described that "an individual who expresses an intention to take action will be more likely to engage in the action than will an individual who expresses no such intention" (p.549) as supported by the authors mentioned above. From a socio-psychological approach, few specialists (Katz, 1960; McGuire, 1969; Pennington et al., 1999 in Stoll-Kleemann et al., 2001, p111) argued that "(...) attitudes help a person to mediate between inner demands of the self and signal arising from the outside world (...) These external cues may relate to influences of social networks, and views of the appropriateness of lifestyle and consumption behaviour".

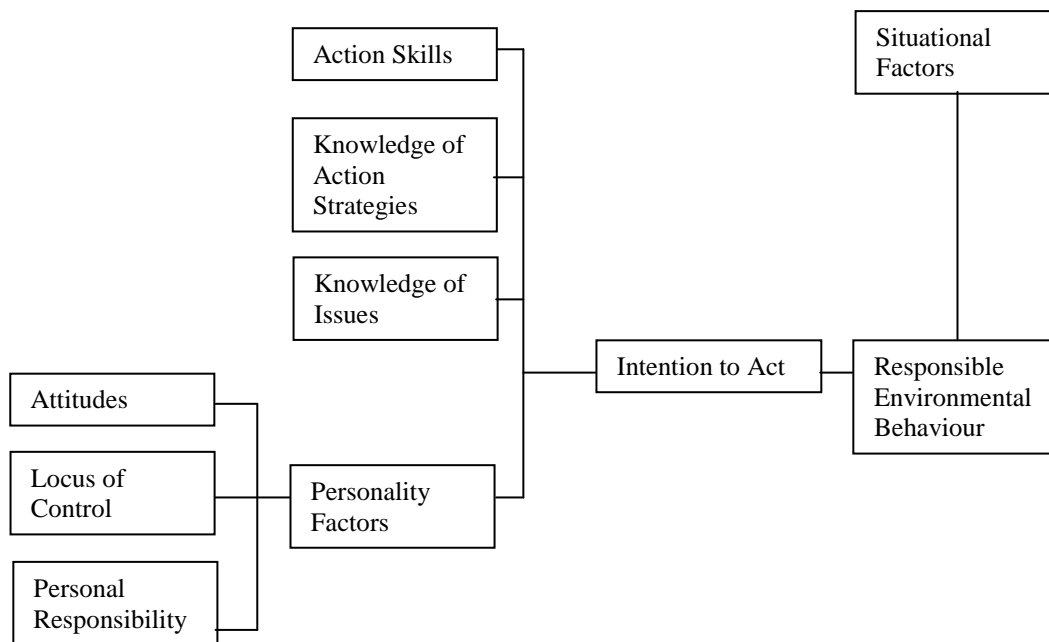


Figure 1: The Model of Responsible Behaviour (Hines, et al., 1986, p.)

Nevertheless, Hines, et al., (1987 in Lee & Moscardo, 2005, p. 548) also expressed the model of responsible behaviour in more detailed explanation. According to them (Lee & Moscardo, 2005, p. 549), in order to move an intention into act “an individual must also possess knowledge of action strategies” – which corresponds to the knowledge about how to react to the situation – “knowledge of environment issues” – which are the knowledge regarding the specific issue – , “and skills in appropriately applying this knowledge to a given problem” – meaning that individual must be able to use those knowledge in a optimal way in order to deal with the situation successfully.

“In addition, an individual with an internal locus of control, positive attitudes towards the environment and towards taking action, and with a sense of obligation towards the environment will be likely to develop a desire to take action. Situational factors, such as economic constraints, social pressures, and opportunities to choose different

actions, may either counteract or strengthen the variables in the model” (Lee & Moscardo, 2005, p. 549).

Furthermore, Nilson & Küller (2000 in Becken 2004) argued that “attitudes are better predictors for behaviour than knowledge”. Ajzen & Fishbein (1975) supported that the attitude toward an object is a good predictor of behaviour toward that object if there is a high correlation between the intention and behaviour. It has been suggested that there is a two way relationship between attitude and behaviour. On one hand attitude influences behaviour, but behaviour may as well influences attitude on the other hand. Individuals possess a variety of values, and how these work together creates intention and finally results in behaviour. In other words, individuals do not have the same attitude towards the environment and the phenomenon of climate change.

Within the context of tourism, Holden (2008) explained that since tourists are different it means that their interaction with the natural and physical environments of the destinations it different as well and will vary from one individual to another. Therefore they do not have the same expectations from their environment either. According to Holden’s modes of experience of the destination environment developed from Ittleson, et al., (1976) and Iso-Ahola (1980), skiers experience the environment as a setting for action. In that case, Holden (2008, p.54) argued that “the environment is primarily interpreted in a functional way as a place for hedonism, relaxation and recuperation” as suggested by Cohen’s (1979) central theory phenomenology of tourist experiences while describing the recreational tourist. Furthermore, Holden (2008) illustrated that “the physical environment may also possess the characteristics necessary for the pursuit of activities, e.g. (...) snow for downhill skiing (...) the pursuance of satisfying the needs of relaxation or excitement and thrills is paramount over environmental appreciation. The destination environment is primarily seen as external to one’s self.” (p.54)

Therefore, Holden (2008) described that skiers are likely to adopt the following environmental attitudes and behaviours:

“Conscious or subconscious disregard for the environment and a lack of interest in learning more about its natural or cultural history. In some cases a possible disinterest and disregard for environmental codes of behaviour, leading to negative environmental consequences. Examples would include littering, breaking of coral, frightening of animals, disregard for local customs and traditions” (Holden, 2008, p.55).

On top of that, little research has been undertaken to understand skiers’ perception of the phenomenon of climate change, and little is known about skiers’ environmental knowledge and awareness, or their “willingness to pay more for greener tourism products” (Hudson & Ritchie, 2001, p. 2) either. In addition, “limited research on skiers and their environmental commitment has produced contradictory results” (Unbehaun, et al., 2008). “The current understanding of how recreational users and tourists respond to climate variability is very limited, and additional research on the impacts of climate change for recreation and tourism demand is required” (Shih, et al., 2009, p.361). Very little research has been undertaken to understand skiers’ attitude and behaviour regarding climate change, and what would make them commit to change, which is however of crucial importance to future potential success. Ski resort users are very important stakeholders, and they should not be neglected. Contrariwise, there is growing and urgent need to focus on and cooperate with them (Hudson, 2000).

In sum, the fact that whether or not green values lead to green behaviour is influenced by the above described factors which lead to different behaviour among the population (Swarbrooke & Horner, 1999). In addition, whether or not green values do not always lead do

green behaviours – individuals' environmental awareness and environmental behaviour – this behaviour varies among different market segment as well (Holden, 1998, 2000; Hudson, 2000). When it comes to climate change, this phenomenon may be also explained by the fact that people are not well educated enough, and confused about the issue which is very complex as well as attitudes related behaviours process (Eiser, 1994 in Becken, 2007; Stoll-Kleemann, et al., 2001). In short, it is such a complex challenge to understand individual's perception of the phenomenon of climate change, especially when they deny the existence of the issue or any responsibility, as manifested through the tragedy of the common.

2.9. The tragedy of the common

The very well known “tragedy-of-the-commons” (Hardin 1968) is the most referred piece of literature in environmental research. Holden (2008) and Stoll-Kleemann, et al., (2009) explicated that the tragedy of the commons emphasised that human beings are selfish when it comes to moderate their consumption patterns or adapt their lifestyle in behalf of environmental concerns. Hardin (1968) explained that humans overuse the common natural resources (“the commons”) in order to reach personal benefits and personal satisfaction. In the tragedy of common, Stoll-Kleemann, et al., (2001) additionally argued that:

“Behaviour that makes sense from the individual point of view, when repeated by enough individuals, ultimately proves disastrous to society (...) each individual gains, financially or otherwise, by consuming the natural resources. Each, furthermore, sees little harm in doing so since the resources is so huge in size and their impact on it so small” (Gardner & Stern, 1996, p.23 in Stoll-Kleemann, et al., 2001, p. 112).

The tragedy of the common may help explaining the gap between individual attitudes, values and their actual behaviour. According to Stoll-Kleemann, et al., (2001) individual' s attitude is associated with general norm and their behaviour relates to personal responsibility.

Even though the society's environmental awareness seems to have increased and individuals are moving in the direction of green values (Williams & Ponsford, 2009), there is a gap between individual's attitudes and their behaviours, especially when they are being tourists (Becken, 2004, 2007). Stoll-Kleemann, et al., (2001), explored how people consider individual's responsibility regarding to climate change, and concluded that there are a number of well-known reasons why people's attitudes differ from their behaviours. They reported that "both social norms and cultural norms provide significant biases for such attitudes. But so, too, does personal experience, and the "certainty arrays" of co-ordinated beliefs that are formed to assist in their response to complex, and possibly intimidating requirements" (Stoll-Kleemann, et al., 2001, p. 111). This creates a lack of consistency – where green attitudes and green behaviour do not resonate in a coherent manner – in individuals' attitudes related behaviours. In clear, Stoll-Kleemann, et al., (2001) argued that environmental and green attitudes (values) aroused from social norms and tendency – or cognitive processes –, in opposition to behaviour which reflect people sense of individuals' responsibility influenced by external factors. They described the phenomenon by explaining that there is a denial mechanism "or displacement act powerfully to maintain the gap between attitude and behaviour with regard to climate change" (p. 111) in people's mind set. The following table shows examples of this denial mechanism which allow individuals to not feel guilty, of merely justify themselves for not taking action.

Table 3: Nine ways in which denial mechanism may occur (Source, Stoll-Kleemann, et al., 2001)

<i>9 processes of denial mechanism</i>	<i>Examples</i>
Metaphor of displaced commitment	I protect the environment in other ways
Condemn the accuser	You have no right to challenge me

Denial of responsibility	I am not the main cause of this problem
Rejection of blame	I have done nothing so wrong as to be destructive
Ignorance	I simply don't know the consequences of my action
Powerlessness	I am only an infinitesimal being in the order of things
Fabricated constraints	There are too many impediments
After the flood	What is the future doing for me?
Comfort	It is too difficult for me to change my behaviour

2.10. Consumer behaviour in tourism

According to Swarbrooke and Horner (1999), consumer behaviour in tourism is very complex. Regarding to the purchase-decision making process the authors explained that one should distinguish between the motivators and the determinants of the decision making process. The motivators are the factors which motivate the wish to purchase a tourist product. The determinants are the factors which determinate to what extent tourist are able to purchase such tourist product.

There are different tourist motivators and they vary according to products and most importantly for this paper they vary according to individuals. Swarbrooke & Horner (1999) suggested a typology of motivators in tourism (see figure 2). Those factors will differ from one tourist to another according to tourist's personality, lifestyle, past experience, past life, perception of self, and how individuals wish to be perceived by others. Furthermore, motivators tend to vary between the different segment markets and research identified variances among ages, gender, education, income, and marital status.

Besides the motivators, there are two types of determinants according to Swarbrooke & Horner (1999) which influence the purchase of tourism products. First there are some aspects that determine, in the present case, whether or not a tourist will be able to go skiing,

but most importantly for the purpose of this paper, there are some determinants that indicate which kind of skiing product is going to be consumed. Among the latter set of determinants which are the ski destination, the period when the tourist will go skiing, which mode of transport will be used, the duration of the trip, the accommodation, the extra activity (après-ski), and how much will be spent, there is a distinction between personal and external determinants. Personal determinants are illustrated in figure 3. External determinants from the closest to the most far from the individual are for example, views of friends and relatives, the influence of marketing, the influence of media, national, society-wide, political, economy, social and technological factors at a national level, and then at a global level.

Swarbrooke & Horner (1999) argued that very little research has been undertaken in order to look at nationality relation to consumer behaviour in tourism, and further claimed that the only certitude is about the relation between incomes and purchases “the only clear link that has been established on a global basis is that as an individual’s incomes rises, so their spending on tourism increases” (p.215). However, research has identified some difference among tourists behaviour according to their nationality, and more particularly their culture. In fact, Swarbrooke & Horner (1999) reported that culture might influence and explain difference among various nationalities, “there are differences in the level of concern between different countries” they argued (p.207). Hudson & Ritchie (1991, p.3) also discussed that “nationality influences tourist behaviour”. According to Holden (2008, p.26), “different cultures often reveal distinct variations in how they view nature, supported by their spiritual and religious beliefs which influence our interaction”. He further argued that “cultural and religious belief systems influence our interaction with the natural environment” (Holden, 2008, p.29).

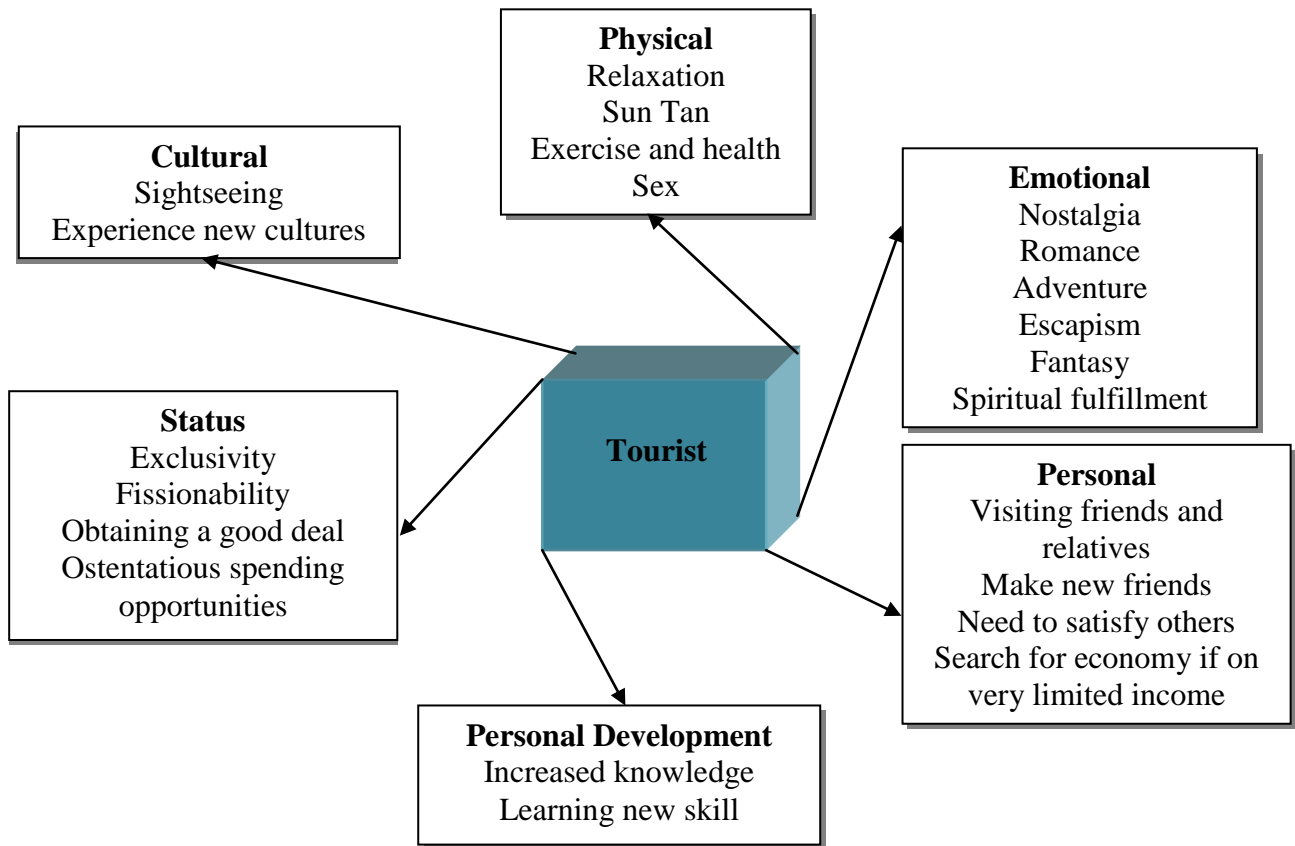


Figure 2: A typology of motivators in tourism (Swarbrooke & Horner, 1999, p.54)

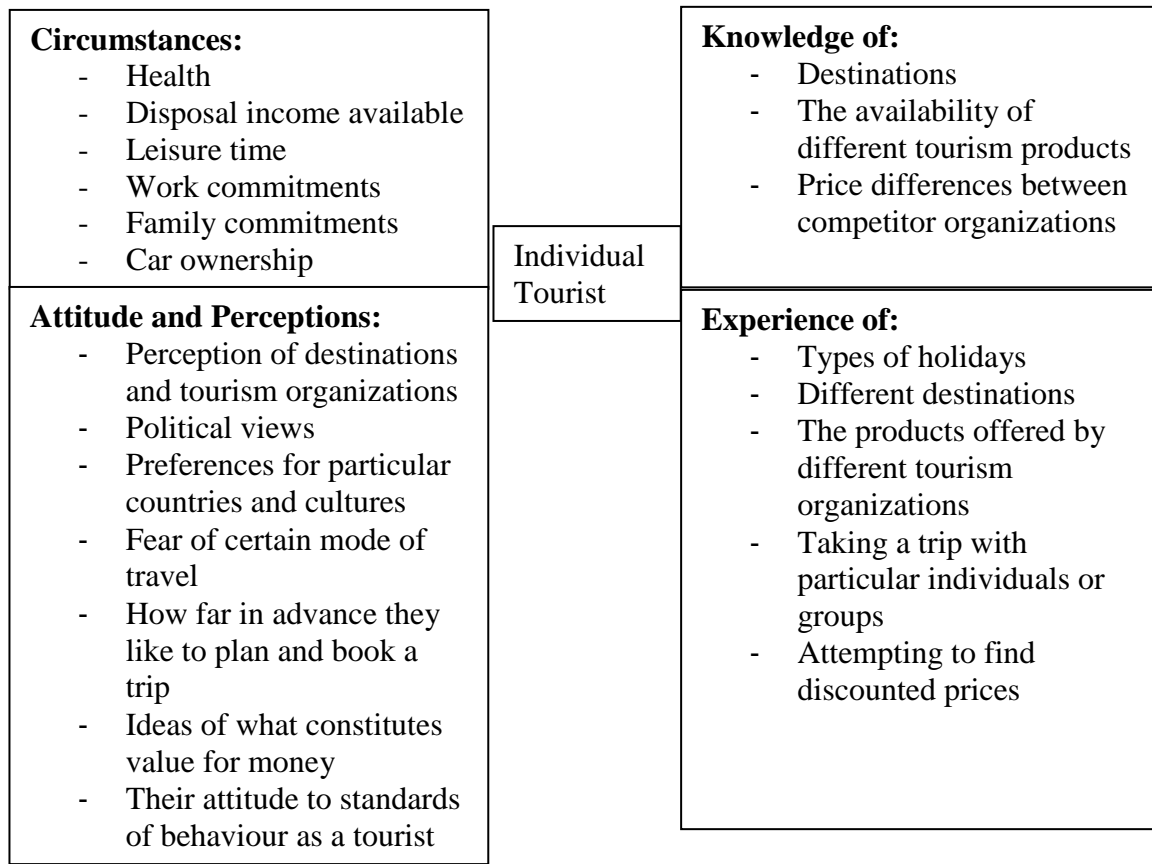


Figure 3: Personal determinants of tourist behaviour (Swarbrooke & Horner, 1999, p.63)

2.11. Emergence of green consumer

“In the late 1980s and early 1990s a view as grown that there is a green consumer, who considers environmental issues when deciding which product to buy or not to buy” (Swarbrooke & Horne, 1999, p197). Therefore, it seems that “concern for the environment was likely to be a dominant social theme since the 1990’s”, according to Shetzer, Stackman, & Moore (1991 in Roberts & Bacon, 1997, p.79), and will remain a considerable indicator in consumer behaviour in the future. Companies and industries that have been forced to begin to respond and adapt to the environmental concerns of the society in the fast, are strongly recommend considering this aspect of the market (Swarbrooke & Horner, 1999). However,

the significant and large existence of green consumers remains undemonstrated among academic research (Swarbrooke & Horne, 1999).

According to early research, green consumers are likely “to avoid product that have negative impact” such as impact over health or the natural environment but also they are likely to avoid waste (Elkington & Hailes 1988 in Bergin-Seers & Mair, 2009). Ottman (1992 in Bergin-Seers & Mair, 2009) suggested the following definition of the green consumer who according to him is “an individual looking to protect themselves and their world through the power of purchasing decisions” (p.110). Nonetheless, since research has also identified a gap between individual’s attitudes and behaviours where green values do not translate to green behaviour, and where regular green behaviour among consumers has not been identified (Witherspoon 1994 in Bergin-Seers & Mair, 2009), there is therefore a challenge raised by “the complexity surrounding the gap between values and action” – which – “makes research of green consumerism difficult” (Bergin-Seers & Mair, 2009, p. 110).

As there is no such a typical tourist but different types of tourists (Cohen, 1979), there are different types of green tourists. Research has previously identified an emergent green market, and few authors have noticed a typology of green consumer, meaning that there are different degrees of green consumer. In the context of consumer behaviour in tourism, Swarbrooke & Horner (1999) suggested that “it is not possible to talk about the “green tourist” as if they were one homogeneous group” they therefore suggested the following typology called “shades of green” tourists (in Holden, 2008, p. 239).

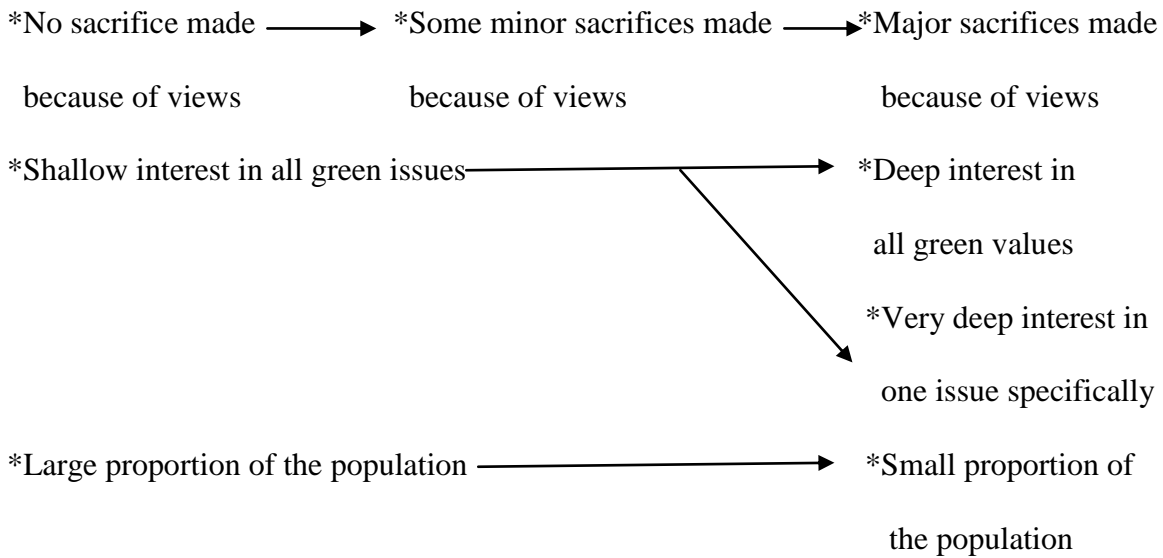
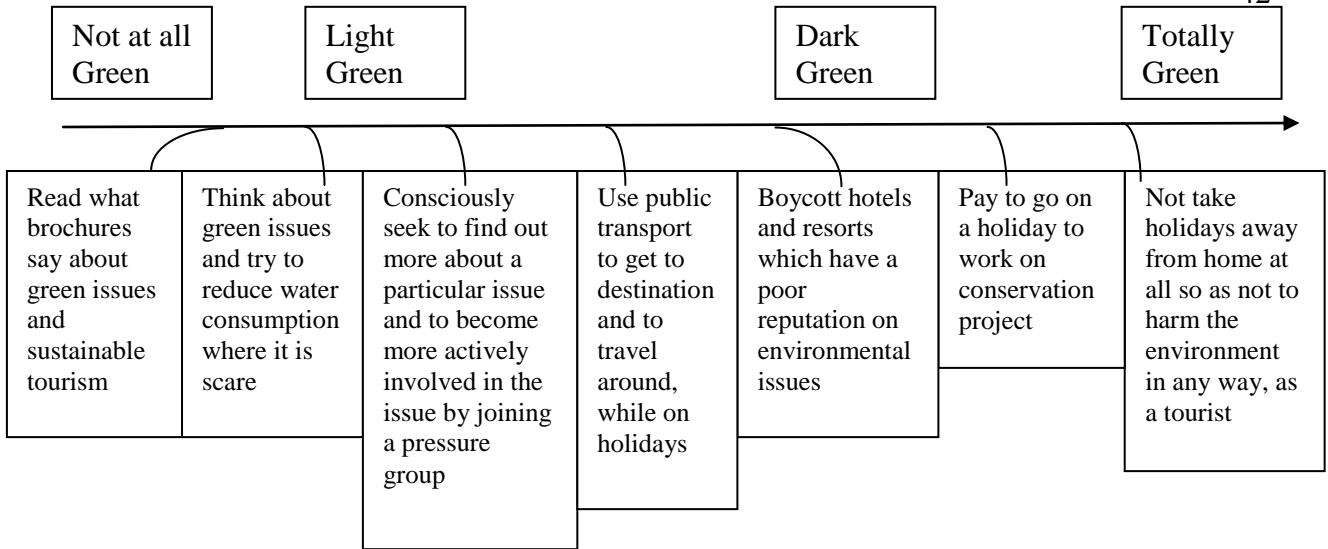


Figure 4 “Shades of green consumer” in tourism (Swarbrooke & Horner, 1999, p.202)

McDonald, et al., (2006) also suggest shades or typology of green consumers which indicates differences with regards to awareness and knowledge of green issues, attitude towards the environment in general, and priority in life (Table 4)

Table 4: Typology of green consumers (McDonald, et al., 2006 in Bergin-Seers & Mair, 2009, p. 111)

Translators	<p><i>For this group, awareness usually translate into action</i></p> <ul style="list-style-type: none"> • They feel very guilty about not doing it before • They gradually include more and more activities • Their concern is often at the level of products rather than companies of industries. • They are prepared to make some sacrifices and are open to change if they can see the impact of their action • Their information seeking is largely passive • Word of mouth and opinion leaders are important to this group <p>They are uncritical of information sources</p>
Excerptors	<p><i>Sustainability is a priority. This group has a complex understanding of a wide range of interdependent sustainability ideas</i></p> <ul style="list-style-type: none"> • They are change-seeking • Their information seeking is active, company level and very critical • They are comfortable with non-mainstream outlets, products and information sources <p>But there is no exception to their green lifestyle:</p> <ul style="list-style-type: none"> • It is usually a “small” exception • During the purchase process for the item they will completely ignore their usual green and / or ethical criteria • They will have a specific justification for this purchase which allows them to be happy with their decision
Selectors	<p><i>This group is green or ethical in on aspect of sustainability only – Green – peace or recycling or green energy or organic</i></p> <ul style="list-style-type: none"> • Probably the most common group • This would explain why green marketing fails and green marketing research can give conflicting results • Support for Peatties’s notion of a context-dependant portfolio of (possibly inconsistent) purchases • Could be s starting point for the other groups • Information seeking is selective, ad hoc and can be active, depending on the issue

One should be aware that “there is no such thing as a totally green consumer” (Bergin-Seers & Mair, 2009). In addition it if difficult to segment green consumers by demographics since beliefs do not translate into purchasing behaviour

There is very little evidence that green consumerism leads to green tourism. Yet, tourists do not environmentally friendly behave if they do not manifest green consumer behaviour at all. Green tourists have specific motivations (See figure 5)

In particular, Hudson & Ritchie (2001), concluded that “international leisure travellers are increasingly motivated by the quality of destination landscapes, in terms of environmental health and of the diversity and integrity of natural and cultural resources” (p. 3). In that manner they also figured out that skiers are more concerned about the environment than other sportsmen (Hudson & Ritchie, 2001). Globally, “(...) environmental considerations are now a significant element of travellers’ destination-choosing process” (Ayala, 1996 & Kiernan, 1992 in Hudson & Ritchie, 2001). “International travellers also share willingness to contribute to the preservation and enhancement of natural environments” and it would seem that travellers are willing to pay more to get environmentally friendly services (Ayala, 1996 in Hudson & Ritchie, 2001, p. 3). Contrariwise, Unbehaun, et al., (2008) noted that “clients are rather sensitive on waiting time and price (...) the overall vacation cost influences the choice behaviour enormously” (p. 45). This theoretical observation might be explained by the fact that there is a gap between individuals’ attitudes and their real behaviours while skiing for instance. This reinforces the need for research to focus on tourists’ perception of the phenomenon of climate change.

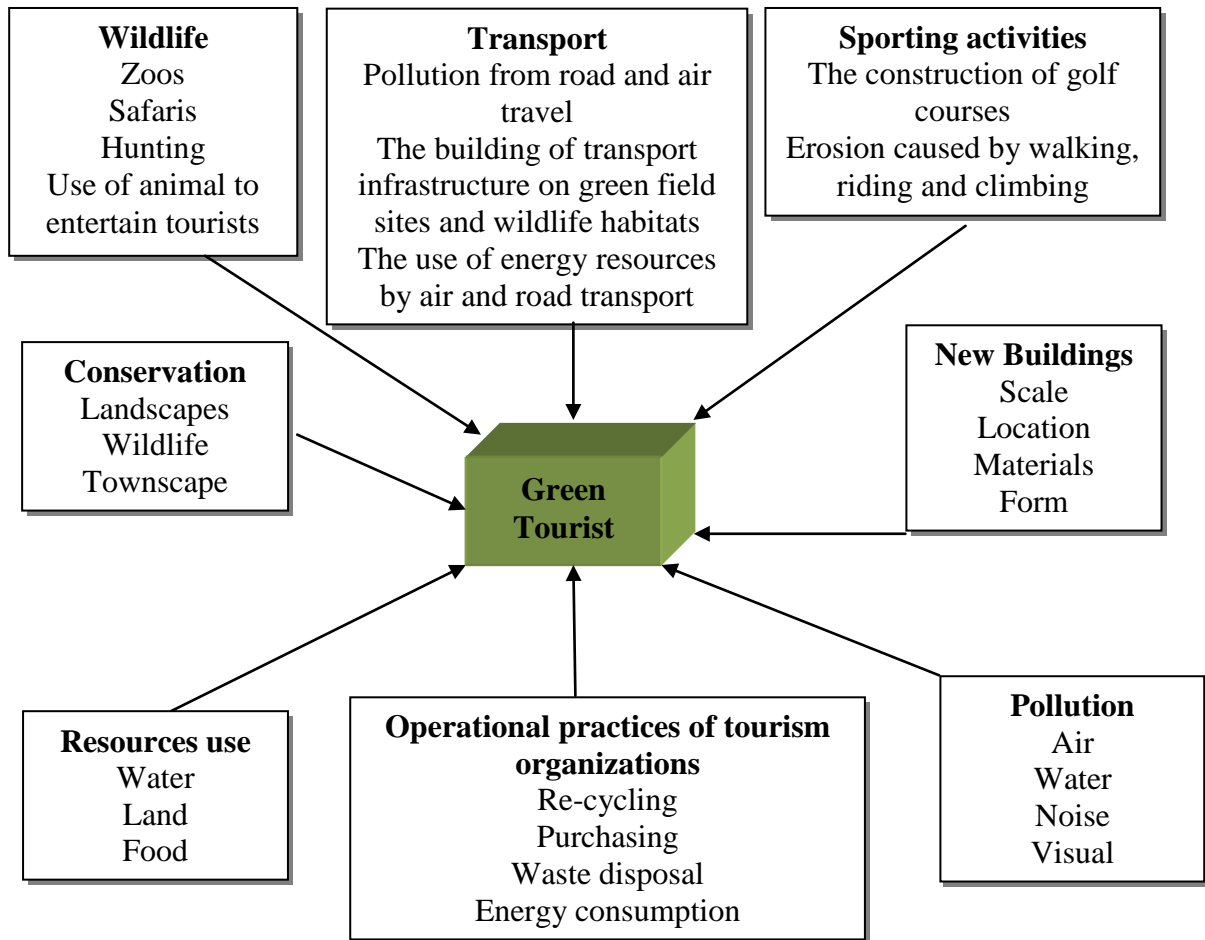


Figure 5: Issues that may concern the green tourist (Swarbrooke & Horner, 1999, p.201)

In sum, it is clear that Norway is being challenged by the phenomenon of climate change. Worldwide, research has not been able to draw general conclusions about ski resort sustainability, because the latter varies according to different destinations and their respective markets. Therefore, research should focus on particular ski destinations at this time. For instance, it seems that the Norwegian society is particularly sensitive to environmental concern. As a consequence this paper investigates to which extent skiers in Norway are concerned about the issue of climate change. The following chapter presents a review of the methods that were developed and implemented to address this study context.

3. Methodology

3.1. Introduction

The objective of this research paper was to assess skiers' perception of the phenomenon of climate change, through an analysis of their attitudes and behaviours. It aimed at gaining an in-depth and detailed understanding of skier's perception of the phenomenon, and therefore a collection of qualitative data has been gathered. The study focused on international students enrolled at the University of Stavanger (UIS), Rogaland, Norway, and was based on the following research questions. (1) To what extent skiers are concerned and/or worried about the phenomenon of climate change? (2) To what extent does the phenomenon of climate change influence skiers' behaviour? (3) What changes can skiers anticipate in the future, and what will be required to make them commit to these changes?

The present chapter is divided in five sections. First it explains how the study was designed. It gives explanation for why the researcher based the research on qualitative approach. The second section describes the population that was investigated, and how it was chosen. The third section portrays how data were collected, thus by describing the interview protocol. Then, the fourth section tells how data were analysed. Finally, the fifth section summarises and gives some limitations to the study.

3.2. Design

The researcher was a master student enrolled at the Norwegian Hotel School (UiS). This exploratory and descriptive study investigated to what extent the phenomenon of climate change influences skier's behaviour in Norway, and as a result was built up on qualitative approach. The qualitative method was used because it provided an in-depth and detailed understanding of the phenomenon being studied (Salkind, 2009). This is corroborated by

(Kelly, 1980 in Veal, 1997), who explained that “qualitative rather than quantitative techniques are better at providing an understanding of people’s needs and aspirations” (p.130). Jupp (2006) explained that such a study, which looks at the meanings and interpretation of a phenomenon and the social process in which it occurs, should be build up on qualitative approach.

According to Kelly (1980, in Veal 1997) leisure and tourism experiences are qualitative in nature, a point that supports the use of qualitative research methods in the study of leisure and tourism. In that context, qualitative studies are based on the belief that tourists personally involved are best placed to describe their experiences or feelings in their own words (Veal, 1997).

Qualitative research is also well suited in a situation where individuals’ attitudes and behaviours tend to vary, as the case described in chapter two of this paper. Qualitative “method is better able to encompass personal change over time” according to Kelly (1980, in Veal 1997). “By contrast much quantitative research tends to look only at current behaviour as related to current social, economic and environmental circumstances, ignoring the fact that most people’ behaviour is heavily influenced by their life history and experience” (p. 130). Finally, “leisure itself involves a great deal of face-to-face interaction with people – involving symbols, gestures etc. – and qualitative research is well suited to investigate this” (Kelly, 1980 in Veal 1997, p.130).

Peterson (1994, in Veal, 1997, p. 130) listed several advantages represented by a qualitative research approach. Among others it allows research:

“To develop hypotheses concerning relevant behaviours and attitudes; to identify the full range of issues, views and attitudes which should be pursued in larger-scale research; to suggest methods for quantitative enquiry – for example, in terms of

deciding who should be included in interviews surveys; to understand how a buying decision is made; to develop new product, service or marketing strategy ideas – the free play of attitudes and opinions can be rich source of ideas for marketers; to provide an initial screening of new product, service or strategy ideas; to learn how communications are received – what is understood and how – particularly related to advertising”.

3.3. Sample

In this study, the snowball sampling technique was used in order to get students to participate. Snowball technique which is also known as network, chain-referral, or reputational sampling, is an analogy to the way a snowball increases in size. Snowball sampling is a multistage technique used in order to obtain the participation of an already-existing network.

“It begins small but gets larger as you roll it and picks up additional snow. (...) You begin with one or few case, then spread out based on direct or indirect links to the initial case (...) It is “a non-random sample in which selection is based on connections in a pre-existing network (...)” (Neuman, 2009, p. 91).

Whether or not it is direct, all participants have some kind of connection. In this study, the first contact was made through STIL. STIL is a student organization which offers several activities such as basket-ball, football, volley-ball and so forth but it also organizes outdoor activities such as climbing, hiking and skiing trips. The researcher contacted STIL’s leader – who was a student – who accepted to participate in the project. Then she was asked whether or not she knew students who would be willing to be interviewed. The second respondent was an acquaintance of the first respondent and was asked the same question at the end of his own interview.

For the purpose of this study, the researcher focused on both international and Norwegian individuals. Such a choice was the result of two connected observations. First of all, the number of immigrants in Norway is significantly increasing each year. In January 2010, statistic Norway (StatisticsNorway, 2010) counted 333 900 immigrants – 31 000 more than 2009 – which represented nearly 7% of the population. In Rogaland, immigrants count for over 8%. Rogaland is the second county after Oslo where the percentage of immigrants is superior to the national average (See appendix 1). Furthermore, the largest foreign community in Norway is represented by 46 700 Polish individuals. It is also the one that has increased the most every year since 2004. As a consequence, there were two Polish people among the respondents. This international characteristic was also observable among the students at UiS with 7.6% of the international students in 2009 (NorskSamfunnsvitenskapeligDatatjeneste, 2010). That was the second reason why international students were invited to participate to the study. On top of that, since the population aged 16-66 represented nearly 70% of the population of Stavanger, it appeared relevant to focus on students for this study (Statistic Norway, 2010).

A total of fourteen students both international and Norwegian were interviewed between the week 17 and 19. They were aged between 19 and 36 years old, and nearly all of them practiced downhill skiing: one was a snowboarder and few practiced both downhill and snowboard, or downhill and cross-country, or downhill and free skiing. Table 5 gives a more detailed description of the participants' profile

Table 5: Summary profile of interview respondents

Nationality	Gender	Age	Education	Ski Level	Ski type
Iraqi	Male	25	Bachelor	Medium	Winter/summer/free
Polish	Male	27	Master	Medium	Downhill

Scottish	Male	19	Bachelor	Expert	Snowboard
Portuguese	Male	34	Bachelor	Expert	Downhill
Norwegian	Male	22	Bachelor	Medium/adv.	Downhill/Free
Austrian	Female	24	Master	Medium	Downhill
English	Female	36	Bachelor	Advanced	Downhill
Polish	Female	20	Bachelor	Medium	Downhill
English	Female	23	Bachelor	Expert	Downhill/Snowboard
Russian	Female	26	Master	Medium	Downhill
French	Female	23	Bachelor	Advanced	Downhill
Norwegian	Female	28	Master	Medium	Downhill/cross-country
Norwegian	Female	23	Bachelor	Advanced	Downhill
Norwegian	Female	24	Bachelor	Expert	Downhill

The profile of study participants reflects the international character of the country where the study was undertaken. Yet, one should not consider that the sample was significantly representative of the entire country. In fact, the study was conducted to gain an in-depth and detailed analysis of the phenomenon rather than draw general conclusion about it, as entirely explained in the next part.

3.4. Data collection

The data collection was based on 14 in-depth semi-structured open-ended interviews conducted at a face-to-face level at UiS. The interviews were fully tape-recorded and lasted between 25 and 30 min. It allowed an accurate record of respondents' answers and the use of direct quotes, and it also allowed the researcher to listen to the respondent while they were

talking, and to focus on the non-verbal communication which is quite important in interview based survey (Fontana & Frey, 2005).

Interviews are used to focus on social amelioration. By definition, structured interview “asks all respondents the same series of pre-established question with limited set of response categories” (Fontana & Frey, 2005, p. 699). The use of semi-structured interview allows the researcher to adapt the interview all long the process of collecting the data. The advantage of semi-structured interviews is the flexibility. Although the interviewer did use some established general topics for investigation, the method provides the freedom to explore emergent themes and ideas (Jupp, 2006). The in-depth interview seeks to probe more deeply than it is possible with a closed questionnaire-based interview, where respondent only answer question by yes or no. Indeed, it encourages respondents to talk. The data collection was based on in-depth semi-structured open-ended interviews since the focus lies on understanding attitudes and behaviours rather than measuring them (Salkind, 2009). Worldwide, interview results tend to have “a true and accurate picture of the respondent’s selves and lives” (Fontana & Frey, 2005, p.698-699).

The scientific tradition of interview based inquiry lies in the neutral character of the technique. However, this is according to Fontana & Frey (2005) rather mythical. The issue of neutrality is important while conducting interview. In fact, whether or not he or she is conscious, the interviewer is unavoidably biased by his or hers motives, desires, and feelings. Therefore, there is an issue about how the interviewer shall introduce the inquiry. On one hand, if the interviewer lets the participant know where he or she stands about the phenomenon discussed, the risk of bias becomes larger. On the other hand, if the interviewer hides his or her personal motivations the interviewee may feel uncomfortable while facing such a stranger. Therefore, Fontana & Frey (2005, p.710) quoted:

“The interviewer’s manner should be friendly, courteous, conversational, and unbiased. He should be neither too grim nor too effusive; neither too talkative nor too timid. The idea should be to put the respondent at ease, so that he will talk freely and fully.” (Selltitz, Jahoda, Deutsh, & Cook, 1965, p.576)

As a consequence, any interview should always start by “breaking the ice”, with an informal and general question (Fontana & Frey, 2005) such as “what first comes to your mind when you hear the words climate change?” Then the questions are narrowed down until the researcher is able to get where he or she wants, which in the present case was, to which extent the phenomenon of climate change influence your skiing behaviour.

The participants were asked to talk about their attitudes and behaviours regarding the phenomenon of climate. The interview was divided in five themes (1) Awareness and attitudes (2) Relevance of climate change in daily behaviour (3) Skiers’ environmental behaviour as it relates to climate change (4) Present and future changes in skiers’ behaviour as it relates to climate change, and fifth (5) Understanding what will be required to make skiers commit to these changes. The two first part of the interview focused on respondent’s behaviour as consumer. It was important to understand individual’s attitude and behaviour in everyday life in order to understand their actual and future behaviour as tourists. (Swarbrooke & Horner, 1999) clearly illustrated that point within the following statement:

“The subject of consumer behaviour is the key to the underpinning of all marketing activity, which is carried out to develop, promote and sell tourism products. Clearly, if we are to optimize the effectiveness and efficiency of marketing activity, we must try to understand how consumers make their decisions to purchase or use tourism products. If we understand their behaviour patterns, then we will know when we need to intervene in the process to obtain the result that we want. We will know whom to

target at a particular time with a particular tourism product. More importantly, we will know how to persuade them to choose certain products which we will have designed more effectively to meet their particular needs and wants. An understanding of consumer behaviour is crucial to make marketing activity more successful.” (p.3)

In other words, Swarbrooke & Horner (1999) explained that “consumer issues have an effect on the levels of tourism demand” (p.106). They further stated that there is no such green tourist is there is no green consumer already, in sum “being a green tourist is just an extension of the idea of the green consumer” (p.206).

Consumer behaviour is influenced by various internal and external factors also known as pull and push factors according to some authors such as Hall & Higham (2005), which makes consumer behaviour in tourism very complex. According to Swarbrooke & Horner (1999) tourist behaviour will be influenced by the following factors. (1) Economic and financial development (2) demographics and social changes (3) technological innovations and improvements (4) experiences (5) the influence of media (6) marketing (7) political, legislative, and regulatory factor. They further explained that tourist demand is also influenced by the safety of the journey, infrastructural, equipment and facility investments and finally environmental planning and impact issues. Therefore, the third part of the interview (3) Skiers’ environmental behaviour as it relates to climate change, focused on those push and pull factors, and aimed at understanding why students go to ski. It investigated respondent’s behaviour while skiing and going to ski. It assessed the relevance of climate change in their skiing practice patterns, and aimed at understanding why skiers are / or are not concerned about the phenomenon of climate change. Hence, the researcher could analyse if there were similitude or differences in interviewees’ attitude as consumer and behaviour as skiers. Finally the fourth (4) Present and future changes in skiers’ behaviour as it relates to

climate change, and fifth (5) Understanding what will be required to make skiers commit to these changes. Table 6 reports the complete interview schedule.

Table 6: Semi structured interview schedule

Theme 1: Awareness & Attitude

1. What comes first to your mind when you hear the words climate change? Why?
 - a. *Probe: What are the first words you have in mind?*
2. To what extent are you aware / concerned about climate change? Why?
 - a. *Probe: According to you what is climate change about?*
3. How do you perceive the phenomenon of climate change going on today? Why?
 - a. *Probe: To which extent do you think that climate change is/or is not a serious issue?*

Theme 2: Daily Behaviour

4. To what extent does the phenomenon of climate change influence or does not influence your daily life? Why? Or why not?
 - a. Do you use reusable shopping bags?
 - b. Do you save energy at home?
 - c. Which can of transportation do you use? Car? Bike? Train? Bus? Car-pooling?
 - i. Please explain why or why not? Is it because of climate change?

Theme 3: Skiing Behaviour

5. Tell me about your ski behaviour:
 - a. How often do you go skiing a season?
 - i. Or perhaps a month? A week?
 - b. Where do you ski? Why?
 - i. Do you try to ski closer to home to avoid travel patterns?
 - c. Why do you ski?
 - i. *Probe: For the activity itself? For the environment? To be with friends? All? Others?*
 - d. How do you go to ski? Why?
 - i. *Probe: Personal car? Share a car? Bus? Fly?*
6. How do you choose a ski resort? Why? Or why not?

- a. Do you value resorts that provide environmentally friendly services? Why? Or why not?
 - b. Do you value resorts that have good snow conditions? Why? Or why not?
 - c. What environmentally friendly services are important to you when you go skiing, if any? Why? Or why not?
7. To what extent are you concerned about the environment when you go to ski? Why?

Theme 4: Present and future changes

8. Have you recently changed your ski practices due to climate change concern? Why? Or why not?
- a. *Probe: Is it economical? Is it for the environment? Others?*
9. Can you anticipate any change in your skiing behaviour within the next 5 years? Why? Or why not?
10. Will you keep skiing if ski pass price rises up? Why? Or why not?

Theme 5: Requirement to change

11. How do you perceive ski destination's responsibility with regard to environmental issues? Why?
- a. *Probe: Do you think that ski destinations are responsible to do something to protect the environment? Why? Or why not?*
12. How do you perceive individuals' responsibility with regard to environmental issues? Why?
- a. *Probe: Do you think that individuals are responsible to do something to protect the environment? Why? Or why not?*
13. What will be required to make you change?

Theme 6: Additional Questions

14. Do you think that your economical situation has an impact on your skiing practices? Why?
15. Do you have any comment?
16. Were the questions clear?
-

3.5. Data analysis

After conducting the interviews, key passages of each interview were partial transcribed and analysed by using a Meta Matrix (See Appendix 3). A Meta Matrix is a graphical display that depicts relevant quotes from the respondents in charts (Miles & Huberman, 1994). Listing key information from all the interviews in one document has the advantage of providing an overview of the collected data and creates the basis for comparative analysis (Miles & Huberman, 1994). A Meta Matrix summarizes the interviews into accessible, tangible and manageable findings. Therefore, the researcher was able to generate some themes and categories which allowed for comparing the answers and finding out whether or not there were similarities or difference among respondents. The reader should interpret the Meta Matrix in the following manner. (1) The quotations are to be read horizontally from the left to the right. (2) To make the Meta Matrix more manageable and easy to read at the first glance, a colour coding scheme has been developed (See appendix). (3) The colour coding scheme furthermore makes it possible to easily compare answers across informants, and see whether or not there is consistency at the individual level. There follows an example. To the question “To what extent are you concerned about climate change when you go to ski?” the colour red was attributed to respondents who were not concerned, and the colour green was attributed to respondents who were concerned about climate change while going to ski. In addition, the colour blue was associated to respondents who were concerned about climate change, yet for personal reasons such as availability of snow rather than disturbance of wildlife for instance. Therefore, it was simple to compare answers and further analyse them in more details.

3.6. Limitations to the study

Research is an uncertain undertaking, and it is inevitable that a research will encounter challenges that require the researcher to make informed decisions. It is especially true within the context of qualitative inquiry and the use of interview, where interviewer's neutrality is questioned. Difficulties have been met by the researcher during this study. Without a doubt, the most challenging issue that has been faced was at the beginning of the research process, while the researcher tried to get a ski resort involved in the project. After meeting and / or talking with a selection of resort's manager in Norway, the research realised that those managers claimed that the issue of climate change was interesting but they were not interested themselves. They gave the impression of denying the phenomenon of climate change. As for instance, Wolfsegger, Gössling & Scott (2008) who concluded about a low altitude ski resort in Austria that managers did not perceived climate change as a serious and significant threat for their activity.

In sum, rather than focusing on a specific resort, this study focused on a specific market, and therefore the snowball sampling technique of recruitment was the most appropriate and allows the researcher to interview individual with a particular profile. The results generated through the development and implementation of these methods are reported, analysed and discussed in the chapters that follow.

4. Implementation & results

The purpose of this chapter is to present and analyse the result of the data collection. The Meta-Matrix helped to generate themes and categories that are presented under the following parts.

4.1. Climate change

The part of this chapter focuses on individual's attitude towards the phenomenon of climate change. In order to look at respondent's general attitude concerning the issue, questions about awareness and concern were asked.

First of all, the interviews show that all the respondents were aware of the climate change going on today. In fact, most of the students heard about climate change through media and television, public opinion, and/or their education or personal readings. Overall, respondents who were aware of the phenomenon of climate change through the media only, seemed less concerned about the environment than the others, such as the respondent involved in an environmental organization. This may explain that the respondents did not all associated climate change with the same occurrences. For instance, most of them connected the phenomenon of climate change with the fact that climate, weather, and temperatures are changing indeed, and furthermore, most of those respondents linked climate change with warming up, less snow, and melting. Few respondents associated the phenomenon of climate change with human activities / human actions; whether or not they claimed that it causes the climate change as interviewees 09 and 13.

"It is something that not one person on its own can do about. It is consequences of human actions, a cycle that can't really be avoided."

(Interviewee 09)

"We should try to reduce CO2 emissions out in the air. We have to drive fewer cars, and turn off the lights and such small things that can help the environment."

(Interviewee 13)

The rest of the respondents linked the phenomenon of climate change with the fact that climate and weather are changing because of human actions (causes and consequences),

“The increase of temperature caused by an increase in CO₂ gas levels in the atmosphere linked mainly to human activities.” (Interviewee 11)

It is not surprisingly that individuals associated climate change with different events. As a matter of fact, scientists would argue that “given the complexity of the weather, it is very difficult to attribute what proportion of these recent temperature changes can be explained by natural cycles, however, rising sea levels, melting glaciers, and an increase in ocean acidity point to real changes” as reported in Stephens (2008, p.8). In addition, respondents’ variety of answers may also be explained by considering Lenzen, 1999/2000, McDaniels et al., 1996 (in Becken, 2004, p. 340) who merely described that “the causes of climate change are complex” (p.340). In sum, global public opinion research about the phenomenon of climate change concluded that “the majority of the citizens have fairly loose knowledge of the causes and underlying science of climate change” (Stoll-Kleemann, et al., 2009, p.110).

Second, the data collected showed that although all the respondents were aware of the phenomenon of climate change going on today, they were not all concerned with the same extent about the issue, as one may read in the Meta Matrix (See appendix 3). Overall, there were different attitudes towards the issue of climate change among respondents, both in favour and in disfavour of the environment. On one hand, individuals had less positive attitude towards the environment or were less active to preserve it when they did not perceive positive benefit or feel personally concerned about it (Becken, 2004). Some students did not have an extremely positive attitude towards the environment because they could not feel the effect of climate change personally.

“I am more concern about environment in my day to day life if it benefits me as well.”

(Interviewee 03)

“I am aware, but only a bit concerned. I am aware because of the media but not so much concerned because I don’t feel that it will affect me directly. I don’t live in an area where raising sea level will affect me, and in the cold areas where more precipitation could just as well mean more snow (...) it is a serious issue but it is not affecting me directly.”

(Interviewee 05)

On the other hand, some students had a very positive attitude towards the environment. Yet, one may see that those particular respondents also explained having experienced climate change personally.

“(...) I have experienced myself such as fewer snow in winter the Alps, extreme warmth in summer, melting glaciers and more weather change than when I was a child (...) especially when I see or experience climate change myself I reflect about it.”

(Interviewee 06)

“I think that I am quite informed in regard to climate change and feel relatively concerned in the sense that it does affect me but not on a daily basis.”

(Interviewee 11)

Furthermore, few respondents considered that “people” do not feel concerned the same way about climate change depending on where one is coming from, implying which natural resources one depends on and how rich or poor the country is. As a matter of fact, few respondents mentioned that according to them, there were differences between poor and rich countries when it comes to the level of concern about the issue of climate change and its consequences.

“(...) here in Europe or Norway we don’t feel it that much (...) maybe they are happy that it is happening because they are going to have sun more than before, and they are going to have a summer. But other places it is just going to be worse and worse for them. Some people are

happy for that and some are not, it depends on places, but sometimes it can be very dangerous (...) in the Middle East they don't care about the climate at all.” (Interviewee 01)

“It depends where you come from, what resources you depending on, and for example if you come from a country which is very poor, then climate change causes for dry, the effect in your life is going to be disaster but if you come from a richer country it is less likely to happen.”

(Interviewee 03)

“There were changes and some changes were good. History shows that when climate changes some loose and some profit. But today, if the ones that loose are the rich countries.”

(Interviewee 04)

Finally, the interviews illustrated that whether or not respondents believed that climate change was a serious issue, they all manifested consistency between question 2 “to which extent are you aware / concerned about the phenomenon of climate change?” and question 3 “to what extent do you think that climate change is a serious issue?” In fact, half of the respondents – who declared that they were concerned about the phenomenon of climate change as well –, the phenomenon of climate change seemed to be a serious issue. According to the colour code, this is clearly visible on the Meta Matrix for respondents 01, 06, 09, 11, 12, 13, 14, 07 (same colour for both answers). One will further realize that most of those respondents also explained that they have experienced climate change themselves.

Question 2

“(...) I have experienced myself such as fewer snow in winter the Alps, extreme warmth in summer, melting glaciers and more weather change than when I was a child (...) especially when I see or experience climate change myself I reflect about it.”

Question 3

“I think that I am quite informed in regard to climate change and feel relatively concerned in the sense that it does affect me but not on a daily basis.”

(Interviewee 11)

Some of the respondents merely felt that they will experience it soon or late, as the following quotations:

Question 2

“I am aware of the changes in the way that we can see the seasons evolve differently, the amount of snow that falls and when.”

Question 3

“It's a serious issue in the way that if we don't mobilise to do something about it it's going to be far too late and we are going to have very difficult lives ahead of us.” (Interviewee 09)

Question 2

“I think I am really aware and concerned definitely.”

Question 3

“I think it's very serious. I think it's one of the biggest issues we are facing. I think it's a global problem. You know increasing of the sea level and everything gets warmer and warmer. It has many impact on water reserve, many people need it. We need to have ice in the mountains during winter if we want water in spring.”

(Interviewee 12)

“It's a serious problem going on I think. I think it's scary, and we have to do something about it. (...) Yes, I am concerned. As I said I try to do small things because I think that it might help.”

(Interviewee 13)

On the other hand there were no positive relationship between question 2 and question 3 for almost the other half of respondents. While those respondents in particular claimed that they were not concerned about the issue of climate change, they further stated that it was a serious issue.

In sum, although all the respondents declared being aware of the phenomenon of climate change, they were not all concerned about it. Moreover, individuals in this study were often more environmentally aware than concerned or active, as figured out in Bergin-Seers & Mair (2009). Overall, the interviewees were very often inconsistent in their answers. As a matter of fact, some respondents claimed that they were not concerned about the phenomenon but believed that climate change was a serious issue, and that one should take action. In addition, even though half of the students claimed that they were both aware and concerned while thinking that climate change is a serious issue, there were not fully sure about it, or manifested some dissimilitude between attitude and potential behaviour.

4.2. Daily Behaviour

The second part of this chapter explores the relevance of climate change in respondents' day to day life. In order to test whether or not there was a link between individual's everyday life behaviour and their behaviour while going to ski, several questions were asked about their daily domestic behaviour. The researcher aimed at figuring out whether or not respondents were concerned about the environment in everyday life, and especially if there were concerned while shopping and or travelling – in the large sense of the term – or if they were saving energy at all. This also permitted to see whether or not there was a similitude between their attitude (as described in the first part) and their behaviour.

As reported in section one, half of the students, namely students 01, 06, 09, 10, 11, 12, and 13 all argued that they were both concerned about the phenomenon of climate change

while believing that it is a serious issue. To the main question of this theme “to which extent the phenomenon of climate change influences / or does not influence your daily life?” they gave the following answers:

“I use reusable shopping bags (...) Not directly because of climate change but because I do not want to use more resources than I need. I think this is a nice way of contributing to nature and our surroundings (...) But I also use them in order to save money (...) I try to think of nature friendly behaviour in everyday life, but I also try to enjoy my “unfriendly” behaviour without feeling guilty for that such as taking a bath, which takes a lot of water. I use the bus, because it's the only thing left. I would use car-pooling if someone with a car and the same destination would live nearby.

(Interviewee 06)

“Well, I do use reusable shopping bags and I think that it's the minimum that people can do. Because it's small thing that does not cost anything and that are good for the environment.”

But:

“I use my car a lot for convenience I like to have my liberty and not depend on a schedule. But it's more a matter or habit maybe. Car pooling the most I can for money reasons and ecologies reasons too.”

(Interviewee 09)

“I do use reusable shopping bags but not always, I think that it is more convenient to use plastic bags. I'm buying special light bulbs that use little energy (...) First of all to pay less money, and I didn't really think about environment in this case. I use the bus, the bike and sometimes a car when it is an urgent matter. I use the bike because it is healthy and cheap plus it is a very good exercise.”

(Interviewee 10)

“I only use reusable shopping bags as the use of new plastic bags all the time is an unnecessary waste of natural resource. I do my best to save energy by not leaving electronic devices on standby for example, it saves money and electricity. I tend to use buses or walk in the city and when I am in the country side I tend to use the car as there are no accessible bus routes. Taking the bus is very practical in a city centre and helps in reducing CO2 emissions.

(Interviewee 11)

“Well I think we are quite lucky because we don't actually feel it, see it at all. There is no big impact of the climate change here. Well, I try to do so a little bit. I have been flying less definitely. And I do not have a car at the moment. And I do save electricity. I don't like using so much power if I don't need it. And I don't pay electricity so it's not to save money.”

(Interviewee 12)

Moreover, other respondents, who also said that the problem of climate change is a serious issue, did not environmentally friendly behave. For instance, interviewee 02 who already manifested a lack of consistency (See Meta Matrix and / or above quotation section one) believed that climate change is going to be an extremely serious issue but on the other hand does not translate his environmental attitude to positive environmental behaviour.

“I am not interested in it (...) I think it will be extremely, soon, because the degradation of the environment is getting very serious.”

On the other hand, the same interviewee stated:

“I am having 24h switch on computer I don't care about it (...) because Norway has too much electricity so it's basically free (...) I would be saving more in Poland because you have to pay for electricity.”

(Interviewee 02)

Among interviewees, some manifested positive behaviour towards the environment in everyday life but rather to save money than the environment itself, or just because it is more convenient at time.

“I don’t consider it (...) the transport I choose to use is not based on the climate, but is based on what suits me the best. I don’t have a car so I tend to walk or take the bus, which happens to be better for the environment but it happens to be more convenient for me at the same time (...) about recycling I like the system in Norway when you put the bottle to recycle and get some of your money back, so you are rewarded a bit more. I do like to save energy, (...) and obviously when you have to pay bills it would save money at the end of the day so it’s a good habit to get in to as well.”

(Interviewee 03)

“I think that climate change is a very important issue. The worst part is that it can influence not only on us, but further generations as well. They will suffer from it a lot.

(Interviewee 08)

However, when the same respondent was asked whether or not the phenomenon of climate change influences her daily life, the answer was the following:

“To be honest no, it does not. For example I don't use reusable shopping bags. I just don't think about it when I go shopping, so I just get a new plastic bag each time, unfortunately. I'm always switching off the light, when I'm not in my room. I'm also trying not to use too much water when taking a shower and cleaning the dishes, but it's more to save money than resources.”

(Interviewee 08)

“I think that it is more convenient to use plastic bags. I'm buying special light bulbs that use little energy, plus most of the kitchen/bathroom machines are of A class which means that

they use less energy than normal. First of all to pay less money and I didn't really think about environment in this case. I use the bus, the bike and sometimes a car when it is an urgent matter. I use the bike because it is healthy and cheap plus it is a very good exercise."

(Interviewee 10)

Last but not least, independently of their level of environmental attitude as well, one may observe that most of the respondents have both environmental and non environmental oriented behaviours at the same time.

"I do use reusable shopping bags. I try to save energy mostly at home."

On the other hand, this student also uses his car:

"I mostly use the car and in the morning I do car pooling with colleagues from work. Not because of climate change but because it's convenient. I need the car for other things after work and car pooling is cost saving for everybody."

(Interviewee 04)

"No. I do recycle the trash. I'm trying to not use that much paper. I use the bus and the bike because I don't have a car. I hope and believe that when I'm finished with my studies, and do afford to buy my own car, the cars will be a lot more climate friendly. Besides, I don't think about the environment or climate change in my daily life."

(Interviewee 14)

One may further notice that respondents who did not drive the car explained that it was because they do not have car. Swarbrooke & Horner (1999) argued that ownership or non-ownership of a car is also a key determinant of tourist's behaviour which may prevent tourists to behave environmentally friendly.

One may summarise that whether or not positive attitude leads to positive behaviour; positive behaviour does not always require positive attitude. Overall, most of the respondents

reflected a lack of constituency between their environmental attitude and their actual behaviour. Obviously there was a gap between attitude and behaviour for most of them (Stoll-Kleemann, et al, 2001; Higham & Cohen, 2010), meaning that individuals believed that there is a need to take actions to preserve and protect the environment, but they do not take action themselves, unless they take action to achieve personal benefits. Finally none of the respondents stated that they environmentally behaved to protect the environment in an altruistic manner.

4.3. Skier's environmental behaviour

The section of this chapter assesses the relevance of climate change in skier's – environmental – behaviour. In the third theme of the interview, the researcher was interested to explore to which extent climate change influences skier's activity. The aim of this part was first to understand respondent's motivation and behaviour while going to ski. In order to reach this goal, the interviewees were first asked to talk about their skiing behaviour, and the investigation was based on the following questions: How often do you ski a season? Where do you go skiing? Why do you ski? How do you get there? Why do you go to this particular place(s)? Especially, in second part of this theme, the research focused on how respondents choose their ski destinations, and why. Hence an additional question was asked when needed: "how do you choose a ski resort, and do you value resorts that provide environmentally friendly services, why or why not?" Finally, by investigating their behaviours, the researcher could analyse if there was a positive relationship between interviewees' behaviour as consumer on one hand and as tourist on the other hand. Therefore, the last question of this part was "to which extent are you concerned about the environment while going to ski?"

In this research project, all the respondents mentioned that snow was an important factor while going to ski and choose a destination (See Meta Matrix for an exhaustive report).

Gössling, et al., (2006, p.419) concluded that “it is widely recognized that tourism is subject to weather and climate, with travel decisions to a large extent being based on (...) availability of snow”. In addition, it is largely concluded in research that good snow condition is the most essential input factor for skiers while going to ski (Falk, 2008; Hudson, 2000; Hudson & Ritchie, 2001). In a study, Richards (1996 in Falk, 2008, p.1175) suggested that “60% of all skiers rank snow conditions as the number one factor in selecting a ski destination”. In addition, skiers manifested the need to be close to the nature and enjoy “fresh air” as well. According to many experts (Holden, 2008; Hudson, 2000; Hudson & Ritchie 2001), skiers require and expect to enjoy the natural environment while going to ski.

Consumer behaviour research in tourism reported that young people theoretically have the same motivations while taking a particular holiday at a specific destination. For instance, they are known to seek for party, relaxation, and make a lot of friends (Swarbrooke & Horner, 1999), which has been indeed mentioned in those interviews. The following quotations illustrated significantly young people’s motivational factors while going on holidays/recreation.

“I just want to ski, enjoy the nature, have fun, and try sometimes new, but it has to be a good place to ski, and also I would choose the cheapest place, which often means the nearest. For me a good skiing place has not much trees and is safe with a lot of snow.”

(Interviewee 01)

“I ski because it’s fantastic, the feeling, the speed, the adrenaline and good time with friends. It’s a challenging sport and it is fun, and it is good to travel with friends and have a nice time in the evening.”

(Interviewee 04)

Yet, consumer behaviour – research – is very complex. Swarbrooke & Horner (1999) also argued that individuals are different and therefore have different motivation while purchasing products and services. The same theory is applicable for tourists who in fact do not have the same motivation while going on vacation. They might all look for good snow condition indeed, but they might have – multiple – motivations in addition which vary from one tourist to another. Overall, the research has described in chapter 2 that those motivators vary according to individual's characteristics such as demographics, lifestyle, experience, or perception that tourists have of themselves for instance such as self ranked ski level. Even though, the respondents were all young individuals being students, they did not have significantly all the same motivations while going to ski. For instance, Swarbrooke & Horner (1999) argued that there are further types of motivators, and those may be cultural, physical, emotional, or personal, and it is also about personal development and status.

In this study, most of the respondents in this study manifested the need to socialize with friends while going to ski (See exhaustive quotations on Meta Matrix). In addition, few interviewees, namely respondents 01, 02 & 04 strongly manifested the need to compete and challenge the natural environment while going to ski.

“I ski because it is a very interesting sport for me; (...) it is very interesting for me to have control on those two boards.”

(Interviewee 01)

“I like skiing because I like snow, I like challenges, and I like technical equipment (...) Freedom when you ski, it's everything.”

(Interviewee 02)

“It's a challenging sport”

(Interviewee 04)

Furthermore, respondents' motivators can be associated with Beach & Ragheb who established the Leisure Motivation Scale (1983, in Swarbrooke & Horne, 1999) which includes four components: the intellectual component, the social component, the competence-mastery component and the stimulus-avoidance component. Two of those components appeared in respondents' motivators. For example, the above three quotations relating to the need to compete and challenge the nature may be associated to the competence-mastery component, which is related to an activity which is physical in nature such as ski. In fact, "individuals engage in leisure activities in order to achieve, master, challenge, and compete" (Swarbrooke & Horner, 1999, p. 54).

Another component of the leisure motivation scale identified in those interviews is the social component, "which assesses the extent to which individuals engage in leisure activities for social reasons (...) this component includes the needs for friendship and inter-personal relationship" and "the need for the esteem of others" (Beach & Ragheb 1983 in Swarbrooke and Horne, 1999, p.54). This may be associated with personal motivator (of typology of motivators in tourism in Swarbrooke & Horner, 1999) which among others involves the need to be with friends (see above need to social with friends).

In addition, the researcher of this study has identified cultural motivators in the way that individual look for experiencing new cultures or merely something new. For instance, respondents 02 and 13 were significant examples of individuals expressing the desire to experience something new such.

"I still like to travel to different place in the world, because different places have different environment, different minds, snow types, different culture aspects as well. I think it's interesting to experience sport within another culture for example, I'd like to travel to Japan,

because they have very very good snow condition, good minds, and also a very interesting culture, it's very different.”

(Interviewee 02)

“I really just go where, like this trip in Austria, there is usually someone who picks out the place and we just go travel there. It is usually because we want to try to vary. We just pick a new place every year to experience something new.”

(Interviewee 13)

Those two quotes also reflect the fact that skiers travel further in order to find better ski conditions. Regarding to Austria for instance, it is, according to Falk (2008), “one of the most popular ski destinations in Europe” where “ski resorts differ widely in their characteristics, such as quality of skiing (e.g. length of ski runs, and availability of modern transport facilities), average snowfall, average slope altitude, mountain scenery, distance of the resort from the nearest population centre, and number and quality of accommodation, amenities, and promotional activities” (p.1172).

In short, skiers' motivators were multiple in this study and none of the respondents said the he or she looked at environmentally friendly services while choosing a ski resort (See Meta Matrix Appendix). Some of them did not even know what this could be which supports the fact that people are not aware enough of the issue of climate change (Becken, 2004).

“What kind of environmentally friendly services can a resort have?”

(Interviewee 04)

“I don't feel that skiing resorts are trying to promote themselves as environmentally friendly, so I've never considered a resort with that in mind.”

(Interviewee 05)

“I am not even sure that it exists. At least I am not aware of it.”

(Interviewee 06)

“I find it hard to find any information on the greenness of ski resorts when I am booking a trip.”

(Interviewee 11)

“I have never heard about environmentally friendly services or consider it before now. I just never heard of it. Perhaps I am not interested in it, and didn't get myself informed.”

(Interviewee 13)

Finally, one may see that although skiers valued the enjoyment of, and the closeness to nature as an important factor while going to ski, they were not significantly concerned about the protection of such an environment. As a matter of fact, to the question “to which extent are you concerned about the environment when you go to ski?” only a few respondents felt truly concerned, and claimed that ski activity is damaging and or exploiting the natural environment.

“When I go skiing I am concerned about the use of snow making machines because of the amount of the water they use. Also the problem is with global warming, climate change there will be a lack of water.”

(Interviewee 07)

“When we are out in the nature like skiing it's there the first efforts (that are the most important) should be made by everyone (...) Like not throwing there cigarette buds from the lifts, their papers the rest of their picnics. People should respect the animals and there way of survival in the winter. Also the trees and not ski over fragile branches (to not cut them and kill them with their edges). Its contradictory in a way take the example when they install a

new lift to replace an old one that's cost a lot to run and maybe very noisy and polluting, its good but for that they need to cut a lot of trees down and disturb nature once again."

(Interviewee 09)

"The impact on the environment is important to me and this is why I don't travel too often."

(Interviewee 11)

Swarbrooke & Horner (1999) concluded that very few tourists make decision based on environmental concerns. For example, they do not "choose an airline based on the effectiveness of its environmental management practices", they do not "boycott hotels which do not recycle waste or which have been tested on animals", they do not have "campaign against the building of new theme parks and accommodation units that destroy wildlife habitats" (p.204). They further explained that the only concerned is about wildlife. In this study only one respondent seemed concerned about this issue.

"For the wild life and the trees, people should respect the animals and there way of survival in the winter. Also the trees and not ski over fragile branches (...)."

(Interviewee 09)

According to the literature, "tourists rarely make the connection between causes (e.g. emissions from air travel) and effects (climate change) (Kasemir, et al., 2000 in Becken, 2004, p.340). In fact, they do not think their activity leads to negative impacts or consequences on the environment, In addition "tourists generally refused the mitigation option of reducing the number of flight and travel distance" (Becken 2007, p. 364). This is coherent with the results of the present research study.

In fact Lee & Moscardo explained that whether or not individuals are environmentally concerned at home "they abandoned this level of responsibility while on holiday" (p.547). Becken (2004, p.340) discussed that "holidays are undertaken to achieve personal benefit and

it could therefore be concluded that the environmental risks associated with holidays are underestimated, and accordingly changes in travel behaviour (e.g. trip suppression or shift to low-emission transport modes) are less likely to happen compared with situations in everyday life”.

“It is just convenience and nothing to do with climate change (...) I don’t think about the environment when on holidays”

(Interviewee 07)

“I don't think about it at all actually. Am going to ski one a year, and it is more holidays. So no I don't think about it.”

(Interviewee 08)

“Not really thinking about it too much when I go skiing though. No. Because skiing is recreation and I think as long as it gets the same with snow I am happy.”

(Interviewee 12)

“I am not concerned at all. When I go skiing I am selfish and just think about enjoy myself”

(Interviewee 14)

Becken (2004) also reported that “people assess risk in term of net benefit, rather than potential environmental impacts”. For instance, few respondents in the present study associated environmental concerned regarding to the way it affects their recreation, and not the other way around:

“Sometimes we have to start skiing very late, than before. For example in 2010 we started skiing in late December, but the year before we started in October, so that’s a big difference.”

(Interviewee 01)

“Obviously the climate affects the conditions in the mountains. Recently I think that the snow has not been so good as a long time ago so I think that it affects the industry a little bit.”

(Interviewee 03)

“I am not so much concerned about it, but increased temperature might mean less snow, which is not a good thing. It’s not something I think of every time I go skiing.”

(Interviewee 05)

In sum, there were different kinds of individuals which lead to various motivations and create different degrees of green skiers. Individuals go to ski if there are good snow conditions and enjoyable natural settings. Individuals go to ski either to socialize with friends, achieve physical well-being, or both at the same time. One may further observe that skiers were willing to travel further to find better snow conditions and or experience something new.

4.4. Present and future changes

In the fourth part of this chapter, the researcher focused on potential present and future changes in skier’s behaviour. It aimed at assessing the relevance of climate change in potential behavioural changes in the future. Therefore, the three following questions were asked: (1) Have you recently changed your skiing practice due to climate change concern? (2) Can you anticipate any change in your skiing behaviour within the next five years? (3) Will you keep skiing if ski pass price rises up?

First of all, the data collection revealed that none of the respondent has changed his or her skiing practice due to climate change concern – in order to reduce human activity’s impact on the environment. As described in section three, individuals do not make personal sacrifice on behalf of the society, such as environmental effort for instance (Becken, 2004, 2007). As noticed earlier as well, tourists are not willing to abandon what seems as their personal comfort. In other words, they find it hard to change if it means doing any form of

social sacrifice (Stoll-Kleemann et al., 2001). In addition “tourists generally refused the mitigation option of reducing the number of flight and travel distance” (Becken, 2007, p. 364) for instance. The respondents interviewed in this study also express this unwillingness.

Regardless the phenomenon of climate change or environmental concerns, some students have actually skied more the past years. On top of that, whether or not they ski more or less, it is because of personal issues, such as location, amount of free time, and or economical issue, or several of those criterion mixed together, but not because they are concerned about climate change or environmental issue.

“It would be very local within Europe because I will be studying so I am going to be in one place, and I am going to have limited founding to do sport so. Or maybe doing more in Scotland and few trips in Norway and back in France but I will not plan any trip across the other side of the world.”

(Interviewee 03)

“No I haven't changed at all. Well I ski less but it's because I don't have so much time.”

(Interviewee 06)

“No, I haven't changed my ski practices due to climate changes I don't think there anything specific that would help climate change. Possibly change would arrive because of my location and moving house and will not be on the door step of the resort (...)It will depend on how much the prices rise but probably yes I will change and I won't be able to afford it for much longer.”

(Interviewee 07)

“Due to financial reasons I will probably ski very little possibly or not at all in the next 5 years.”

(Interviewee 11)

“No. I ski more often now than during high school when climate was not such an issue. I ski more now.”

(Interviewee 13)

“No. I ski as much as I can, and if there is any change it is that I ski more. If I ski less it's because I have less free time.”

(Interviewee 14)

One may observe that students are actually willing to travel more and further to meet their expectations, as described in (König, 1998; Unbehaun, et al., 2008) rather to moderate or adapt their ski practice to preserve the natural environment that they value.

“No I haven't changed my ski practice due to climate change. I generally travel more to go skiing now than I did earlier, because I live further away from the snow, and even further from the good snow, so I have to travel more (...)”

(Interviewee 05)

In this study, none of the respondent declared that they could anticipate change in their skiing behaviour within the next five years. Among the data collected, some of the answers analyzed could translate the desire or the expectations to change but not on behalf of the environment of because of climate change concern. Moreover such change was connected with snow cover patterns. For instance, some of the respondents stated that they would change if there is less snow, or claimed that they would travel further to find expected snow conditions.

“Skiers will always look for the best places. If the places change we change heading.”

(Interviewee 04)

“If there is less snow, it might affect me (less skiing days for me). But I might move to another place within five years, which could well move me closer to good snow.”

(Interviewee 05)

“I think I will do the same as before, unless there is no snow before December.”

(Interviewee 12)

“Well, due to the climate change maybe there will not be any more snow to ski.”

(Interviewee 13)

There is one particular answer that strived researcher intention which is the following:

“Well, maybe yes. It depends on the level of available information around this issue.”

(Interviewee 08)

4.5. Level of responsibility & requirements to change

The fifth part of the interview aimed at understanding what will be required to make skiers commit to change. Three questions were the base of this section. (1) How do you perceive ski destination’s responsibility with regard to environmental issues, and why? (2) How do you perceive individual’s responsibility with regard to environmental issues, and why? (3) What will be required to make you change? Therefore the present section analyses if there is any connection between perceived level of responsibility between destination and individuals, and if so whether it would lead to change.

One may first become aware of the consistency between question 12 and question 13 for absolutely all the respondents. If respondents thought that ski destinations have responsibility with regard to the environment they additionally believed that individuals are responsible as well. Furthermore, while respondents did not think that ski destinations are responsible they did not believe that individuals are responsible either.

Answer to question 12

“(…) they have to use better transports (…) they should buy new technology to save the environment. We should not destroy the nature by building tourism facilities such as camping.

It destroys the nature and requires huge amount of energy (...) and many cars are going to drive to this camping and it going to be warmer and warmer.”

Answer to question 13

“Everyone is responsible and they have to work together to help our future. If we don't do that we are going to destroy the future generation.”

(Interviewee 01)

Finally, to the question “what will be required to make you change?” answers were quite diverse. First of all, one may see that few respondents anticipate change regarding to the issue of transports, and more particularly they are willing to take the bus, under some conditions though.

“If there are going to be more bus to go to Sirdal than now, (only once a day during the week end) I will take the bus yes. But now there is only one bus and if you are not on time you cannot go back home. It is not convenient.”

(Interviewee 01)

“I could take the bus but I am a human being and I am trying to make my life easy, and comfortable. I could take the bus if I am with a group of people, or if I am going to have a discount, come on everything is about money.”

(Interviewee 02)

“I would anticipate the use of more buses in the resort and so use the buses rather than everyone using individual cars. I would be prepared to do this.”

(Interviewee 07)

Second, the researcher identified that respondents will change their skiing behaviour when there will be no more or less snow than at the moment. In other words, the concern was that the availability of snow would affect their leisure activity.

“I think that less snow will make me have to travel more if I want to ski as much as I do now.”

(Interviewee 05)

“I don't see change besides the fact that there will be less and less snow.”

(Interviewee 12)

“If ski is not affordable or if there is no more snow, well I will stop skiing obviously. Besides I don't know.”

(Interviewee 14)

In addition, few respondents suggested that they would be willing to stop skiing, thus for different reasons.

“If I have bad economy I am going to find the cheapest way to ski otherwise I will skip skiing and find something else to do.”

(Interviewee 01)

“If there are more changes in skiing I would like to do more eco-friendly activities. Probably no more skiing and more running and find other alternative for holidays.”

(Interviewee 07)

“I will find other activities to do instead of skiing.”

(Interviewee 11)

“If there is more information available, I will commit in changes.”

Interviewee 08)

“Seeing what the hearth would be like in a hundred years if we don't be more careful about our actions.”

(Interviewee 09)

“If it will be dangerous for my health to ski, than I would change”

(Interviewee 10)

Thirdly, few respondents anticipated some changes if their economic situation does not allow them to afford skiing anymore.

“The only thing that will make me change is the cost. If I can afford it I’ll go. If not I won’t or will ski less and closer to home to keep costs as low as possible.”

(Interviewee 04)

“I think that very high prices in resorts or travelling might make me consider other ways to do skiing, like ski mountaineering or doing fewer, but longer trips.”

(Interviewee 05)

Economical issue was of significant consideration all long this study and therefore is subject to further and deeper description in the next section.

4.6. Skiing behaviour & economical issue

Swarbrooke & Horner (1999, p.215) strongly explicated that, “the purchase of tourism products by consumers is inherently linked to the economy”. It was obvious and recurrent in this study that respondent’s economical situation influences their skiing practices.

First of all, to the question “tell me about your ski behaviour”, more than half of the respondents explained that their skiing behaviour were influenced by their economical situation, or directly stated that ski was expensive, especially in Norway. One may observe that those respondents in particular self-ranked themselves as medium or expert skiers.

“It’s too expensive to ski here”

(Interviewee 01)

“I don't have money either. It's very expensive here in Norway. Yes, I have not skied lately because I did not have money.”

(Interviewee 06)

“I am a student so I cannot afford myself to go to super super ski resorts (...) I choose the cheapest possible way.”

(Interviewee 02)

“I think about saving money at the same time.”

(Interviewee 03)

“My only concern when travelling is cost (...) depends on what is (...) cost effective.”

(Interviewee 04)

“I choose destinations that are a good price.”

(Interviewee 07)

“It is very (...) cheaper to take a car.”

(Interviewee 09)

Although most of the student stated that ski was too expensive, or that they were concerned about money while going to ski, one may observe that almost all of them further claimed that they will keep skiing if ski pass price rises up. One should however consider that respondents will keep skiing to different extents, some will ski more, and some will ski less. Some of the respondents declared that they will adapt their skiing practice; they would likely ski less, or find ways to decrease their expensive.

“Yes, I will but it is going to be less than before anyways because I won't have time. And I think that skiing here is already very expensive.”

(Interviewee 01)

“Yes I think I will. I think I will have more money for that in the future.”

(Interviewee 06)

“It depends if my salary will be enough. And I am sure if the ski pass rises in Norway, salaries will rise up as well.”

(Interviewee 02)

“If I can afford it yes, I will continue. That’s the condition.”

(Interviewee 04)

“Yes, I will for sure. The only thing that can change is the amount of time spent on skiing.”

(Interviewee 08)

“Yes. Because I love the sport so much that I will always find a solution.”

(Interviewee 03)

“I will probably keep skiing if prices rise up, but there is a good chance that I will do more mountaineering ski if prices rise, simply to save money.”

(Interviewee 05)

“Well depends if I win the lottery. I think I will just maybe ski less or choose the smaller resorts even though the skiing isn’t as good. For price reasons I’ll go where it is cheaper.”

(Interviewee 09)

While many respondents will keep skiing if ski pass price rises up, few interviewees clearly stated that they will not be able to afford skiing anymore. Furthermore, what strikes the researcher is that the same respondents stated that they would anticipate change in their skiing behaviour within the next five years due to economical issue. For those particular interviewees (07, 11, 13), one should therefore observe here that there is a positive association between questions 8 “can you anticipate any change in your skiing behaviour within the next 5 years?” and question 9 “will you keep skiing if ski pass price rises up?” One may also observe that those particular respondents self-ranked themselves with the same ski level which was advanced.

According to Falk (2008):

“It is obvious that the willingness to pay is positively related to the length of the ski runs, the variety of slopes may also increase the willingness to pay (...) the willingness to pay for a small change in the quality characteristics is highest for ski resorts with modern high-speed lifts, good snow conditions, high slopes height, a long season, and for those that are interlinked to other ski resorts covered by the same lift pass” (p.1183).

5. Discussion

This research study had the following objectives. (1) Identifying skiers' environmental attitudes with regard to the phenomenon of climate change (2) Identifying and understanding skiers' environmental behaviours as it relates to the issue of climate change (3) Identifying potential – present and future – changes in skiers' behaviour as it relates to climate change. (4) Understanding what will be required to make skiers commit to these changes.

Although all the respondents were aware of the phenomenon of climate change going on today, they were not all concerned about it. First of all, one may recognize that individuals have different levels of awareness and different level of knowledge about the issue of climate change, as described in the model of responsible behaviour (Hines, et al., 1986). The general observation that one may reach regarding to the data collected match with the fact that environmental concern is known as being multifaceted (J. A. Roberts & D. R. Bacon, 1997; Zimmer, Stafford, & Stafford, 1994). In this investigation, whether or not individuals are likely to adopt an environmental behaviour actually depends on a combination of three factors, namely knowledge of issue, priorities in life, and attitude toward the environment in general (Bergin-Seers & Mair, 2009; Swarbrooke & Horner, 1999), mixed together with

factors such as described in figures 2 and 3. Regarding to those factors, one may consider that the respondent who stated having more important priorities in life that climate change was the oldest one and that she was a 36 years old woman with kids, and obviously had more responsibilities than others. Swarbrooke & Horner (1999) also argued that amount of disposal income and other concerns such as poor housing or unemployment may influence individual to turn into green behaviour which was significantly the case in this study.

According to Swarbrooke & Horner (1999) pricing is important to tourism organizations but most importantly it is the perception that the consumer has of the price in term of quality and value for money relation. Therefore, it would have been interesting to figure out the reasons why some respondents think that ski is “too expensive” or “a luxury”. In addition it would have been valuable for the purpose of this study to ask respondents whether or not they would be willing to pay more for eventual green services.

Furthermore, this study has found a series of similitude between the literature review and the data collected. First of all, it is clear that individuals are not willing to sacrifice their holidays on behalf of the environment; especially they are unwilling to compromise when they are not able to understand why they should do so. In fact, skiers did not believe that their activity had a significant impact on the environment, and did not believe that they could change anything. Socio-psychological theory of dissonance and denial illustrated that “people may profess anxiety over climate change, but be faced with internal resentment or even denial over what they cannot accept as justifiable change in behaviour” (Stoll-Kleemann, et al., 2001, p.112) such as in the present case travelling by bus or by bike, or change their skiing patterns as described earlier.

It would seem that those finding corroborate with Higham and Cohen (2010) who concluded that “Norway may be considered a vanguard tourism market in term of climate

concern”. Even though the interviewees were not only Norwegians, it was pretty straightforward in this study that the Norwegian society with its recycling policy clearly influenced international students. Swarbrooke & Horner (1999) explained that one should consider national origin of tourists in their attitudes towards the environment relationship. For instance, “concern with environmental issues in tourism appears to be at very low level in the UK with little explicit consumer demand for greener holidays” especially if compared to German who seem “to be far more interested in environmental issues, if only because of their concern with the quality of their own holidays” (p.205). However, one may raise the question whether or not skiers’ behaviour is moving towards more green values because the all society is moving towards green concerns.

Finally, it results from this study that skiers would change or adapt their skiing patterns according to the availability of snow; as it would not allow them to ski in expected conditions they would stop skiing or travel further away to find expected conditions. Skiers would stop of find other ways to ski, once they cannot afford it anymore. In general one should observe that at anytime, respondents said that they would consider sacrifice their leisure on behalf of the environment.

One may conclude that such an investigation remain very important both from academic research and destination’s management. Although one will not be able to draw general conclusions about skier’s perception of the phenomenon of climate change in Norway, one may however conclude that for this particular study, skiers were not concerned about the phenomenon of climate change in the altruistic manner. As a matter of fact, the only concern that has been significantly observed among respondent is the fear of lack of snow; the latter being the primary source of motivation while going to ski. In fact, the lack of snow was the only reason why skiers in this investigation would be willing to change their

behaviour. Yet, one should notice here that such willingness would be translated in travelling further away rather than giving up skiing.

6. Recommendations & Conclusions

The aim of this study was to gain an in-depth understanding of skiers' environmental concerns, attitudes, and behaviours as it relates to the phenomenon of climate change. More particularly, this study aimed at understanding how skiers' perceived ski resort's responsibility towards the environment in order to understand what would make them commit to change to more environmentally friendly behaviour while going to ski. The results of the study have been presented and discussed in the two last chapters; it is now time to highlight the key findings and conclude how this study can be optimized and why it needs to be replicated.

As discussed in this paper, it is clear that the society is moving towards green values and environmental concerns. On the other hand, there is huge gap between the desire to act and real behaviour among individuals as consumers and as tourists. Within the context of tourism, this is highly explained by the great complexity of human beings' behaviours and the ways they interact with the tourism system. In fact, tourism is such a multifaceted system, that it becomes even more complex within one specific sub-sector such as ski tourism. The latter is twice challenged by the phenomenon of climate change. Although sustainable tourism development argues that tourism may remain a sustainable economy if all its actors collaborate together, the ski industry represented in this study does not seem to agree. On one hand, ski managers' were unwilling to involve in such a study. On the other hand, although skiers were aware of the issue of climate change and believe that change may help, they were not willing to change themselves unless they felt benefited from it. One should however

consider that the society is moving towards green values indeed and that the emergence of green demand is appearing. Skiers in this study stand between light green and dark green consumers.

There would be a few aspects to be considered whether or not this study should be replicated. First of all, such study should focus on a particular ski destination in Norway since the question of sustainability in ski resort varies from one destination to another for the reasons evoked in chapter 2. Second, the sample should be reconsidered. While it seemed suited with the present situation, the sample should be readapted according to the destination's characteristics. In other words, the profile of the study participants should reflect the destination most significantly. Thirdly, the study aimed at gaining an in-depth and detailed understanding of the phenomenon being studied, therefore using semi-structured open-ended interview whose significant strength is the flexible which allows the interviewer to adapt the interview whenever needed. Yet, it seemed to the researcher that this advantage was not fully used in this study. In other words, further study should considerably adapt the interview schedule while conducting the interviews.

Initially, the researcher was interested in exploring eventual variance among all kind of ski practice including downhill, snowboard, telemark, and cross-country skiing; in order for example to figure out if there were significant similitude or difference between those different types of skiers. In order to do so, further study is recommended to interview a larger number of snowboarders, or any other type of skiers. Therefore, the technique of snowball sampling is likely to be successful for that purpose if used in most optimal conditions.

Overall this exploratory and descriptive research project is the proof that research is an on-going and uncertain process that needs to be carried on. In short, this paper values that a

strong collaboration between scientific and academic research, tourism managers, governments, is needed to try to achieve sustainable ski tourism.

This paper has discussed how the phenomenon of climate change is challenging ski tourism and how complex the challenges are. As a matter of fact, the success of ski tourism depends on two complex factors. First, ski industry has to deal with changing demand's patterns which are multifaceted. Second, ski tourism success is tightly associated with natural resources which cannot be controlled whatsoever, meaning that it cannot be taken for granted whether or not snowfall will be reduced. This leads to the final conclusion for both research and destination management. Research in sustainable ski tourism is recommended to keep undertaking studies in order to find out whether or not ski tourism may remain sustainable at all; thus focusing on both supply and demand side at once, with the use of case study for instance. Concerning destinations management, they should certainly keep investigating demand's need but they should reckon that more winter seasons with successful snow condition are likely to happen in the future.

7. Appendices

7.1. Table 7: Foreign citizens. Number and as a percentage of population, by county.

2009 /2010

		2009	2010	2009	2010
0	The whole country	302 977	333 873	6.3	6.9
1	Østfold	14 915	16 126	5.6	5.9
2	Akershus	38 465	41 965	7.3	7.8
3	Oslo	70 269	74 921	12.2	12.8
4	Hedmark	7 254	7 954	3.8	4.2
5	Oppland	7 363	8 166	4.0	4.4
6	Buskerud	17 240	18 971	6.8	7.4
7	Vestfold	12 610	13 665	5.5	5.9
8	Telemark	7 977	8 745	4.8	5.2
9	Aust-Agder	5 784	6 398	5.4	5.9
10	Vest-Agder	10 142	10 952	6.0	6.4
11	Rogaland	30 843	34 597	7.3	8.1
12	Hordaland	25 724	29 311	5.5	6.1
13	Sogn og Fjordane	4 732	5 712	4.4	5.3
14	Møre og Romsdal	10 948	13 135	4.4	5.2
15	Sør-Trøndelag	14 290	16 118	5.0	5.5
16	Nord-Trøndelag	4 249	4 699	3.3	3.6
17	Nordland	8 631	9 615	3.7	4.1
18	Troms Romsa	7 311	8 044	4.7	5.1
19	Finnmark	4 230	4 779	5.8	6.6

7.2. Table 8: Colours coding for Meta Matrix

Colours code
Male
Female
Question 1 What comes first to your mind when you hear the words climate change ?
Weather Change
Human Actions
Cause & Consequence
Question 2 To what extent are you aware / concerned about climate change ?
Concerned
Not concerned
Question 3 To what extent do you think that climate change is / or is not a serious issue?
Serious
Not Serious
Question 4 To what extent does the phenomenon of climate change influence your daily life?
Influenced
Not Influenced
Question 5 Tell me about your ski behaviour
It's expensive
Snow
Challenge
Social
Question 6 How do you choose a ski resort?
Do not look at environmentally friendly services
Question 7 To what extent are you concerned about the environment when you go to ski?
Concerned for personal issue
Concerned
Not concerned
Question 8 Have you recently changed your ski practices due to climate change concern?
Yes I have changed
No I have not changed
Question 9 Can you anticipate any change in your skiing behaviour within the next 5 years?
Change
No Change
Question 10 Will you keep skiing if ski pass price rises up?
Yes
No
Question 11 How do you perceive ski destination's responsibility with regard to environmental issues?
Responsible
Not Responsible
Question 12 How do you perceive individual's responsibility with regard to environmental issues?
Responsible
Not Responsible
Question 13 What will be required to make you change?
Transport
Money
Snow
Skip Skiing
Question 14 Do you think that your economical situation has an impact on your skiing practices?
Yes It Does

7.3. Meta Matrix

See attached document (A3 sheet)

8. References

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