

Tourism Providers' Engagement and Willingness to Adapt to and Mitigate Climate Change with a Focus on Skiing Areas

Bachelor Thesis for Obtaining the Degree

Bachelor of Business Administration

Tourism and Hospitality Management

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Affidavit

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

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Abstract

One of the most significant challenges for communities around the globe is perceived to be the continuous increase of the global mean temperature. Much literature has been discussing this topic thoroughly and many suggestions have been made, which ought to be the solution to this pressing topic. The tourism industry is highly dependent on weather conditions, because it presents a relatively large part of the tourism product and functions as a main motivator for tourists to travel to the respective destination. The vulnerability in this sector is enormous and consequently climate change is especially endangering this industry.

Accordingly, climate change is a topic which should be addressed as quickly and as efficiently as possible and should not be underestimated. In this Bachelor's Thesis the author intends to explore the methods of adaptation and mitigation as tools to cope with climate change and its consequences. Adaptation can be described as the process of dealing with irreparable changes, which have occurred in the environment due to climate change. Mitigation is a tool which enforces policies and emphasizes the implementation of low-carbon and high-efficiency technologies in businesses, to diminish future damage. Both strategies have been described as equally important for sustainable development and the interdependency has been highlighted continuously. Mitigation of, and adaptation to, climate change are highly interconnected and serve the same purpose: the reduction of the unfavorable consequences of climate change.

The qualitative research study undertaken in Saalbach-Hinterglemm has shown that even though there is a relatively large amount of information provided by academia, the practitioners of the industry seem to be quite oblivious to and uneducated about this pressing topic. Moreover it could be discovered that the knowledge about adaptive as well as mitigating strategies to cope with climate change has not matured much either.

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List of Abbreviations

ASC	Aspen Ski Company
APA	Alpine Pearls Association
CO ₂	Carbon Dioxide
E.g.	example giving
Etc.	Et cetera
GHG	Greenhouse gas emissions
GDP	Gross Domestic Product
GNP	Gross National Product
IEHI	Hotels Environment Initiative
NSAA	National Ski Areas Association
OECD	Organization for Economic Co-operation and Development
USP	Unique Selling Proposition
usw.	Und so weiter

1 Introduction

Global climate change has developed into one of the most significant problems of today. The continuous increase of temperatures has led to several changes in the natural environment. Landslides, melting permafrost and melting glaciers are only a fraction of the changes which have occurred over the past decades (Viner & Agnew, 1999, p. 3) Realizing and understanding these changes is only one side of the coin. The incorporation of this understanding into contemporary daily processes, however, poses the true challenge. (Davoudi, Crawford, & Mehmood, 2009, p. 9) Tourism has become the world's largest as well as one of the fastest growing industries. Compared to other industries, it is extremely vulnerable to weather conditions. The link that exists between the economic performance of a destination and suitable climate is striking. One sector in the tourism industry seems to be most dependent on climate conditions: the winter tourism industry. Winter tourism is considered to be second in global popularity, right after coastal regions. (Godde, Price, & Zimmermann, 2000, pp. 6-7)

The impact climate change has on destinations which offer snow-based tourism products is severe and the sector has repeatedly been identified as being at risk of climate change. (Frangialli, Steiner, & Jarraud, 2008, p. 68) Adaptation and mitigation have been identified as tools to cope with climate change. Adaptation measurements are applied in order to deal with the irreparable damage resulting from climate change that has already occurred. (Stern, 2007, p. 458) The function of adaptation measures are the implementation of reactive measures for irreparable changes which have occurred due to climate change. (Bahn, 2010, p. 193) Mitigation measures are introduced in order to curb greenhouse gas emissions to a minimum by the utilization of low-carbon and high-efficiency technologies, as well as educational improvements. (Stern, 2007, p. 395)

The aim of this Bachelor's Thesis is to explore the implementation of these methods in the research area of Saalbach-Hinterglemm (Austria) by undertaking qualitative research. The author seeks to answer the following research questions:

- What is done by tourism providers to decrease global warming?
- What is done to manage the impacts of global warming?
- What is used more often – mitigation or adaptation, and if both are used, are they used in a complementary or independent way?

The following paper will first give a theoretical overview of climate change, including its link to tourism. Subsequently, the results and outcome of the qualitative research will be analysed and assessed based on the literature review.

2 Climate Change and Tourism

2.1 Direct and Indirect Impacts of Climate Change on Tourism

When talking about direct impacts of climate change on tourism, one of the most essential motivators for travelling is meant: the climate. Climate is one of the major attractors for tourists to travel to a specific destination. Realizing this fact, one can grasp the enormous sensitivity of the tourism industry to favourable weather conditions. (Frangialli, Steiner, & Jarraud, 2008, p. 68)

When referring to indirect impacts, environmental conditions, as crucial resource for the tourism industry, are meant. In the winter tourism industry, this could be the provision of intact mountain scenery, as well as an adequate level of snow. Moreover, societal changes as well as political deterioration of specific areas could result out of changes in the climate system. When referring to societal changes, the possible risk to economic growth as well as political stability in certain destinations is meant. Due to the already mentioned dependency of this industry on favourable weather conditions, the attractiveness an area holds for possible tourists could be seriously jeopardized and a change in climate might even cause the destination to vanish fully as a holiday destination for potential visitors. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, p. 13)

This suggestion was underpinned by one of the most noted reviews of the economics of global climate change, the Stern Review. In 2006, this review suggested that even though a rise of just 1°C, which is possibly beneficial for the global GDP, the on-going climate change might lead to a long term risk to economic growth on a global scale. This statement was followed by the suggestion that if society does nothing to stem climate change, consumption per capita could potentially be reduced permanently by 20 % later in the 21st century, as well as in the early 22nd century. (Frangialli, Steiner, & Jarraud, 2008, p. 67)

Studies have shown that the possibility of a shift in the attractiveness of climatic circumstances for tourism, towards higher latitudes and altitudes, seems to be underway. Another interesting aspect is the seasonal as well as geographical relocation of climate resources for tourism, which would impact tourism activities on

a regional as well as national level. The distribution of visitor flows would be arranged in different order and therefore would create a winning/losing party for destinations. This new arrangement would not affect tourism globally, however, it would be felt locally. (Cabrini, Vereczi, Fotiou, & Malone, 2008, p. 175)

2.2 Impacts of Climate Change on Mountain Tourism

The high dependency of mountain tourism on favourable environmental conditions can hardly be found in any other industry. A proper definition for winter tourism could not be found in the current literature and therefore the author defines winter tourism as snow-based activities, which are carried out the winter months and in a respective skiing destination of choice and are in need of an adequate level of snow to be satisfactory. Winter tourism is seasonal tourism. The season generally lies between the beginning of October and the end of March in any given year. The most important time for winter tourism, however, lies in the months of December and February. The principle attractions, which are promoted to potential visitors, are extraordinary mountain sceneries, as well as the promise of an adequate level of snowfall in the region. However, these conditions cannot simply be generated by tourism providers, but are highly dependent on the climate conditions at point. In virtually no other industry can a linkage be found between the profitability of the economy and its dependency on climate conditions. (Cooper, Fletcher, Fryall, Glibert, & Wanhil, 2008, p. 290)

The impacts of climate change are probably most visible in the winter sports sector, because it has been facing the risk of severe decline for years. Areas, which are vulnerable to climate change, might experience modifications to mountain environments, which would jeopardize the provision of nature-based tourism, as well as serve as a basis for increased natural dangers. (Cooper, Fletcher, Fryall, Glibert, & Wanhil, 2008, p. 291) The key scenery attractor in a winter tourism destination is generally perceived to be the glacier scenery. When looking at the dramatic loss of about 7,000 km² of glaciers, which just disappeared in the past 40 years, the true impact of climate change can be grasped. When looking at the European skiing areas, about 30-50% decrease of glaciers could be documented in the 20th century. (Agrawala, 2007, p. 34)

The provision of a decent level of snow, naturally as well as with the help of technological equipment, is perceived to be becoming more and more difficult. Artificial snowmaking machines can currently only produce snow at temperatures below 0; therefore, it can be assumed that in the future this adaptation strategy might not be possible anymore or at least not be affordable anymore. This could be an unfavourable outlook for skiing areas where artificial snowmaking is done on a daily basis and helps ensure suitable skiing conditions. If the scenarios regarding climate change within the next 50 years prove right, some skiing areas will vanish entirely. (Cooper, Fletcher, Fryall, Glibert, & Wanhil, 2008, p. 291)

When taking a look at the present climate scenario, some 609 out of 666 Alpine skiing areas in the European region, about 91%, can be assumed to be naturally snow-reliable. The remaining 9 % are considered to be at the lower end of operating under natural conditions. The figure below shows the European Alps and their natural snow-reliability. Table 1 indicates the different warming scenarios and the impact it would have on the number of skiing areas in the European region and their natural snow reliability. (Agrawala, 2007, p. 32)

Table 1: Warming Scenarios European Alps

Country	Number of ski areas	Snow-reliable under current conditions	+1°C	+2°C	+4°C
Austria	228	199	153	115	47
Switzerland	164	159	142	129	78
Germany	39	27	11	5	1
France	148	143	123	96	55
Italy	87	81	71	59	21
Total	666	609	500	404	202

Source: (Agrawala, 2007, p. 32)

These forecasts are quite alarming for the employees and entrepreneurs in the skiing industry. With the provision of 10-12 % of the jobs in Austria and an annual turnover of almost EUR 50 billion, tourism is one of the most successful economic activities. Winter tourism is one of the major contributors to the Austrian Gross National Product (GNP) and functions as one of the main sources of income. Tourism activities account for 4.5% of the Austrian GNP. (Agrawala, 2007, p. 30)

2.3 Direct and Indirect Impacts of Tourism on Climate Change

In the book written by Cabrini et. al. (2008), the tourism sector is described as a “non-negligible contributor to climate change”. (Cabrini, Vereczi, Fotiou, & Malone, 2008, p. 177) A categorization of three subsectors in the tourism industry has been established, in order to make the contribution to CO₂ emissions more evident. These subsectors consist of the transportation sector, the accommodation sector and the activities sector. In between 3.7% and 5.4% of the global CO₂ emissions in the year 2005 were caused by these three subsectors. The share of radiative forcing amounted to a percentage between 3.7% and 5.4 %. (Cabrini, Vereczi, Fotiou, & Malone, 2008, p. 177)

The transportation sector, with an average of 75% out of 5% overall CO₂ emissions, is the biggest contributor to CO₂ emissions generated in the tourism industry. Including radiative forcing, the percentage rises to 82%-90%, whereas aviation alone amounts to 54%-75%. The accommodation sector as well as the activities sector contribute far less but should not be disregarded. An average of 0.25 tons of CO₂ emissions is caused by a number of different tourism activities. The venture of undertaking high-class luxury trips as well as long-haul cruises and vacations can let this amount rise to almost 9 tons of CO₂ emissions produced by one trip, which indicates a 35 times higher amount, compared to undertaking a regular trip. (Cabrini, Vereczi, Fotiou, & Malone, 2008, p. 177)

The skiing industry is one of the most demanding forms of tourism activities in mountain regions and has become one of the most significant travel motivators. (Godde, Price, & Zimmermann, 2000, pp. 6-7) Its high costs of operation and investment as well as its environmental effects are perceived as an inescapable aspect of winter tourism. The constant growth of this sector increases

competitiveness and suggests high amounts of investment in order to provide the best possible tourism product. Considering the environmental changes that are undertaken in order to create a holiday resort, like deforestation in order to broaden the ski slopes for possible ski runs or the enlargement of the infrastructure, the endangerment of the animal world as well as the flora is a given. The release of sewage into rivers and the amounts of water needed for snowmaking likewise pose a significant risk to the environment. (Godde, Price, & Zimmermann, 2000, p. 31)

3 Strategies to Cope with Climate Change

3.1 Mitigation

Climate change mitigation can be defined as the application of “technological, economic and social changes and substitutions that can help to achieve reductions in greenhouse gas emissions” (Simpson, Gössling, Scott, Hall, & Gladin, 2008, p. 66) Gössling (2011) identifies the containment of CO₂ emissions in the environment as one of the major issues in the industry and identifies it as one of the most problematic undertakings in the 20th century. (Gössling, 2011, p. 6) The responsibility of the tourism sector to limit the increase in GHG emissions is one of the most important ventures in order to prevent future damage. (Conrady & Buck, 2011, p. 82)

Measures in the tourism industry to mitigate climate change are mostly focused on energy efficiency as well as renewable energy. The hotel industry can be described as well-organized and numerous sources have been made available to them in order to undertake energy efficient activities. One of the most noted institutions, the International Hotels Environment Initiative (IHEI), which was established in 1992, focuses on the improvement of environmental performance in the hotel industry and guides tourism providers into a more energy efficient direction. IHEI also offers various benchmarking tools and has managed to publish a magazine (the Green Hotelier), which raises awareness and discusses current topics. (Scott, et al., 2008, p. 159)

The process of mitigation is perceived as challenging when technological changes alone do not lead to a high level of reductions in emissions, but the need for behavioural as well as structural changes is also apparent. The emissions created by the tourism industry are constantly growing and the policies established to encourage mitigation must respond to a number of factors. (Scott, et al., 2008, p. 145)

The ultimate goal for any tourism institution should be to reach a level in which mitigation strategies are implemented in a way that carbon neutrality can be reached. Carbon neutrality can be described as the regulations and procedures

applied in an organization, while being aware of the amount of greenhouse emissions produced within the organization and the undertaking of follow up actions, like the purchase of carbon offsets in order to neutralize these emissions. Such “green operations” would be, for instance, the improvement of the efficiency of an organization’s operations, as well as possible equipment considerations. Moreover, sustainable measures should already be incorporated while constructing buildings, since this will establish the foundation for operating in an ecologically friendly manner in the future. In the tourism industry, the product selection is only made by the tourists themselves and is therefore designed around the tourists’ needs. Accordingly, the creation of a low-carbon tourism sector proves to be challenging and tourism businesses should try to design their products so that they satisfy the customers’ needs, while still enhancing green operations within the organization. The goal for today’s tourism organizations should be to nurture awareness of global warming, while delivering tourism industry services or tourism products, in order to be able to mitigate climate change and develop into carbon neutral organizations. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, pp. 67-68)

3.2 Technological Strategies to Mitigate Climate Change

3.2.1 Accommodation

The accommodation sector’s contribution to global climate change amounts to about 21 % of the total 5 %. (Becken & Hay, 2007, p. 181) Research has shown that on average a guest staying at a hotel for one night will result in the release of 20.6 kg CO₂ emissions. When, however, staying at a campground, the release per person only amounts to 7.9 kg CO₂ emissions. Of course a differentiation between a high class luxury hotel and a basic bed and breakfast hotel has to be made. (Wamsley, 2011, p. 79) When trying to analyse the use of energy in the accommodation sector, the most significant problem turns out to be the lack of data provided by the accommodation suppliers. Becken and Hay (2007) argue that most businesses have little interest in the amounts of energy used in their operations and therefore the delivery of qualitative data unreliable. (Becken & Hay, 2007, p. 159)

Tourism businesses shall seek to develop in a more energy-efficient direction in order to reduce costs and provide for environmentally-friendly operations. Already

at the time a building is being constructed, certain environmental aspects should be considered in order to allow for energy-efficient operations in the future. Material, insulation or other aspects can function as a precondition for reduced energy consumption. The implementation of pro-environmental management can also lead to a reduction in costs. Technologically seen, the options for lower energy consumption are enormous. Thermostats with included time triggers, which only start to heat or cool the room right before guests arrive, as well as the conscious placement of the air-conditioning units in the right spot in order to avoid a waste of energy, are only a fraction of the mitigation measures that could be incorporated into tourism businesses. (Scott, et al., 2008, p. 159)

In the food and beverage sector, the choice of the suppliers who deliver ingredients is also perceived as a very crucial factor. One third of the emissions caused by households in developed countries are caused by food. This leads to the suggestion that the obtainment of locally produced ingredients is by far not as energy intensive as food delivered from overseas. Moreover, tourism providers should seek to make the best use of natural resources available to them, like the sunlight. Cutting trees surrounding the property in order to avoid the need for artificial light is a very cost-effective strategy, which will lower costs and allow for energy efficient operations. (Scott, et al., 2008, p. 160)

When artificial lighting is needed, the implementation of an energy-saving lighting system is of importance. The implementation of lighting systems which are sensitive to movement as well as the usage of energy efficient light bulbs, will as well contribute to a reduction of energy consumption. Many hotels have already familiarized themselves with room keys, which serve as a light switch for guest rooms. Using such room keys in the form of a card, which is inserted into the designated slot and removed when leaving the room, allows enormous amounts of energy to be saved. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, pp. 78-79)

Almost half of the monthly energy bill of a hotel is the result of the showering units, swimming pools and laundry units. One of the most efficient energy reduction tools resulted to be a general setting of water temperature to not more than 60°C. The instalment of low-flow showerheads, as well as making use of the sunlight in tropical regions, should also be considered. (Scott, et al., 2008, p. 160)

3.2.2 Transportation

As noted before, the transportation sector is the biggest contributor to generation CO₂ emissions in the tourism industry. Therefore, the process of getting from A to B is one of the most crucial aspects in either contributing positively or negatively to climate change. Tourism providers, as well as the guests travelling to a destination should seek to avoid carbon-demanding energy transportation facilities or also start to consider different travel modes in order to limit greenhouse gas emissions. Taking the train instead of aircrafts or cars would lead to noticeable improvements. A case study undertaken in Sweden showed that the railway companies have managed to lower GHG emissions significantly and a 30% decrease of GHG emissions is expected for 2020 followed by a decrease by 60-80% in the year 2050. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, pp. 75-76)

If the railway system is advertised accurately, a significant amount of emissions can be avoided and a big step towards a “carbon-free” environment can be made. The convenience of travelling from A to B with a private vehicle however, is an indispensable luxury for many travellers. Even if getting from one destination to another was accomplished by using air transport or the railway, many passengers are in need of mobility in the place of their vacation and often utilize the offerings of various car rental companies. Internationally as well as on a local basis, the use of a vehicle will create considerable amounts of CO₂ emissions. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, pp. 75-76)

What basically can be stated, however, is that the size, as well as the weight transported in the vehicle, plays a huge role regarding the amount of CO₂ emissions released. Many different car manufacturers have already made a step towards low-carbon business by introducing electric-powered vehicles as well as hybrid cars into the market. A tool which could be used by many destinations in order to reach low-carbon procedures is the implementation of “Destination Mobility Management”. An increased level of soft measures is being suggested in order to support a less energy-intensive transportation environment. These initiatives could range from destination-wide transport, which would be resorts in which cars are prohibited, to specific routes with travel restrictions, which would lead to an enhanced need for public transport or using the bike instead of a gas-powered vehicle. These so-called

soft-measures also include an improved communications system. This means that information regarding departure as well as arrival times and places is more precise. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, pp. 74-75)

A mitigation strategy implemented in the European Alps was successfully launched in 2006, when 17 alpine towns in five different nations established the “Alpine Pearls Association” (APA), which in 2007 already counted a membership of 20 communities. The goal of APA is to move towards less energy-intensive transportation facilities. When the tourist has arrived at his/her destination, APA provides for high quality and reliable mobility services, without the need for personal vehicle use. (Scott, et al., 2008, p. 154) However, mitigation activities in the sector of transportation are seen as quite problematic. The transportation sector is perceived an infrastructural necessity for an enhanced lifestyle and an increased development of the economy. Due to the fact that most mitigation activities would lower economic efficiency, many experts have not been able to decide on any appropriate activities in the transportation sector in order to reduce climate change. (Metz, 2001, p. 376)

3.2.3 Tourist Attractions

The skiing industry is known to be one of the most energy demanding forms of tourism. Due to the enormous amounts of energy needed in order to provide the tourist with the desired tourism product, there is a special need for this industry to start considering implementing energy efficient operations. A prime example of how such initiatives can be implemented is presented by the skiing area Colorado Springs in North America. The establishment of the “Keep Winter Cool” initiative has made North America a role model for all other tourism destinations worldwide. The National Ski Areas Association (NSAA) has managed to motivate the skiing industry in North America to incorporate a significant amount of energy-efficient service provision. (Scott, et al., 2008, pp. 71-72)

This has led a ski area in Colorado, the Aspen Ski Company (ASC), to be ranked the international leader in reducing greenhouse gas emissions. Moreover, it was the first ski area to join the Chicago Climate Exchange, which binds this area to reduce and account for greenhouse gas emissions, as well as forced them to reach a 10%

reduction of GHG emissions in 2010. This mission was accomplished by implementing the following mitigation strategies: Aspen Ski Company has the largest photovoltaic array in the industry. The company has managed to carry out all snow making activities with the help of biodiesel, as well as has managed to purchase 100 % of their electricity from wind power generators. (Scott, et al., 2008, pp. 71-72)

3.3 Educational Strategies to Mitigate Climate Change

Education of employees, guests and stakeholders is perceived as one of the most important undertakings in climate change mitigation. Carbon management can only be sufficient if the level of knowledge amongst the people is given. The importance of knowledge generally applies to students, staff, tourists, the media, academics...etc. because of the fact, that those are the people who will use such knowledge to spread information and participate in creating the on-going travel trend. Taking the Aspen Skiing Company as an example, the organization has managed to launch a number of awareness-raising campaigns in order to inform guests of the area about climate change. (Scott, et al., 2008, pp. 71-72)

Another example is the Hilton Hotel group: The management of the hotels has introduced various eLearning tools and training courses in order to educate their employees about climate change and to improve the level of awareness among the staff. (Gössling, 2011, p. 245) What has to be stated, however, is that the growing awareness of tourists, stakeholders and tourism providers does not necessarily lead to a change in behaviour amongst the participants. The well-known gap that exists between climate change awareness, as well as environmental knowledge, and subsequent climate change action is a field which has been topic of many research initiatives. These initiatives showed, on the one hand, that education about environmental changes does indeed lead to pro-environmental behaviour, but on the other hand follow-up research showed that the amount of action was not significant after all. (Halady & Rao, 2009, p. 9)

Stoll-Kleemann et. al (2001) carried out a study in Switzerland to explore people's perception of their responsibility towards climate change mitigation. The result of this study showed that the participants created psychological barriers in order to justify their lack of action as individuals or as people within institutions.

Psychological barriers could be identified through statements like it was not felt to be within their responsibility. As well, a level of carelessness amongst the interviewees could be detected. Moreover, Stoll-Kleemann et. al. (2001) identified helplessness about the issue of climate change as a barrier. The authors state that attitude and behaviour lay so far apart because of the fact that attitudes are generally formed by societal norms; however, behaviour is a decision that lies within each individual and cannot be dictated by anybody else. (Stoll-Kleemann, O’Riordan, & Jaeger, 2001, pp. 112-113)

Pro-environmental behaviour can be defined as “behaviour that consciously seeks to minimize the negative impact of one’s actions on the natural and built world” (Kollmuss & Agyeman, 2002, p. 240) The assumption is that a well-defined combination of awareness and action, mixed with societal pressures as well as individual ability to change one’s behaviour will create the needed will to actually change that behaviour. (Halady & Rao, 2009, p. 9) Kollmuss and Agyeman (2002) made the suggestion that there are two main factors which will contribute to a more pro-environmental behaviour. The authors suggest that such changes in behaviour shall reach a point, in which they become habits and feel natural to the participants. Kollmuss and Agyeman (2002) state “If we want to establish a new behaviour, we have to practice it!” (Kollmuss & Agyeman, 2002, p. 256)

3.4 Adaptation

3.4.1 Introduction

As exemplified in the sub-chapter above, mitigation is a response to climate change in which certain measures are undertaken on a technological or behavioural level in order to reduce climate change. Adaptation can be described as the “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.” (Scott, et al., 2008, p. 81)

The main role of adaptation can be described as behaviour of response to the challenges that come with climate change. Stern (2007) describes adaptation as the only method to cope with the current residual damage that has resulted from

climate change. Moreover, it is described as a way to adjust business activity in sectors which are sensitive and to enhance climate-friendly development. The strategy of adaptation seeks to reduce the dependency on and sensitivity to changes in the climate system and subsequently tries to diminish the negative impacts. Stern (2007) identifies the strategies of adaptation and mitigation both as equally important tools for coping with current conditions. This is because of the fact that without early mitigation measures the costs that come with the implementation of adaptation strategies will become unbearable and the countries' ability to adapt will become harder. (Stern, 2007, p. 458)

There are two broad levels on which adaptation can be undertaken; the building of adaptive capacity through the creation of laws or managerial actions and the provision of high quality information to the participants in the industry. This could be done by undertaking intense research in areas in order to identify sensitivities or/and the identification of necessary resources in order to implement these actions. Another way of adaptation is taking effective steps in order to reduce the prior identified sensitivities. In the winter tourism sector this could mean moving to higher altitudes or the introduction of state-of-the-art technological equipment. (Stern, 2007, p. 458) The main sectors engaging in adaptation procedures are agriculture, water resource management and construction. Scott & McBoyle (2006) state, that a significant lack of a provision of climate adaptation strategies in the winter tourism sector is one of the major problems in the industry. The authors have stressed the need for immediate incorporation of adaptation strategies in order to secure the economic performance and the future of tourist destinations, which are already affected by climate change. (Scott, et al., 2008, p. 71)

What needs to be considered is that through the continuous rise of temperatures and the simultaneously growing need to create new infrastructure which is robust to climate change, along with the demand for adaptive technologies, the costs resulting from such interactions will rise as well. This could lead to an annual expense factor of \$15 – 150 billion, which amounts to about 0.05-5% of the Austrian Gross Domestic Product. (Stern, 2007, p. 458)

3.4.2 The Costs of Adaptation

One of the most important questions in climate change adaptation is not - what are the strategies to adapt successfully, but - how can the necessary resources be found in order support these strategies? One of the most significant investments in adaptation is perceived to be the investment in infrastructure and buildings. The OECD economies (Organization for Economic Co-operation and Development) have a total investment of about 20% of GDP in fixed capital annually. Furthermore, Nicholas Stern (2007) suggests that if the continuous investment in infrastructure and buildings rises, in order to cope with climate change, assuming a warming scenario of 3-4°C, the overall building costs could result by 10%. This would amount to about 110 million euros annually in OECD countries. (Stern, 2007, pp. 459-460).

In the winter tourism industry adaptation measures can generally be divided into two subgroups: Technological strategies and managerial strategies, whereas technological adaptations seem to be most common in the European Alps. Such technological adaptation measurements could be things like landscaping, slope development, moving to higher altitudes, glacier skiing and of course artificial snowmaking. Studies have shown that in some sectors mainly managerial adaptation actions can lead to a high cost-benefit ratio. Behavioural adaptations, such as ensuring the efficient use of water, cost almost nothing and lead to enormous benefits in regard to offsetting damage. (Agrawala & Frankhauser, 2008, p. 13)

On the other hand, many adaptation measurements can be enormously expensive. For instance, the extension of ski areas into higher elevations could cost between EUR 25-30 million. (Agrawala & Frankhauser, 2008, pp. 59-60) Artificial snow-making likewise represents one of the costly adaptation methods. A case study in France showed that in the winter of 2003-2004 artificial snowmaking costs amounted to EUR 60 million, whereas operational costs for the same season amounted to EUR 9.4 million. Costs of artificial snowmaking can generally be divided into three different groups: Investment costs, operational costs and maintenance costs. The Association of Austrian Cableways has established an estimate of EUR 1-5 for covering one cubic meter of snow. Another study came up with EUR 3-5 in order to cover the same; this study also indicated that in order to cover one hectare with artificial snow a cost of EUR 136,000 can be expected. The costs of such interventions are only one aspect to

be regarded, when considering the environmental impact of such interventions. The following chapter will outline the strategy of adaptation in more detail. (Agrawala & Frankhauser, 2008, pp. 59-60)

3.4.3 Adaptation Strategies

3.4.3.1 Technological Strategies

One of the most recognized adaptation strategies in winter tourism is the process of artificial snowmaking. First implemented in 1952, it has continued to be one of the most crucial facilities used in order to secure a desired skiing experience for tourists. Research has shown that the implementation of artificial snow machines has led to an extension of the skiing season by between 55 and 120 days in the years of 1961-1990. If climate change continues to develop the way it has been in the past years, the importance of snow machines will increase even further. A survey revealed that the practitioners of the Austrian skiing industry are of the opinion that with the help of artificial snowmaking machines, the tourism business will be able to be continued as usual for the next 75 years. (Scott, et al., 2008, p. 89)

What needs to be considered, however, is the question of whether the enormous dependency on artificial snowmaking is sustainable? Besides water and air, artificial snow is full of energy. The amount of energy used depends on the choice of the technological system, the positioning of the machine as well as on the source of water. Taking France as an example, previous findings showed that an average energy usage of 25,426 kWh per hectare on ski slopes, which are artificial snow dependent, could be detected. When assuming this number for the overall alpine area which is artificially snow dependent in France (23,800 kWh), a power consumption of 130,000 4-person-households could be assumed. (Hahn, 2004, p. 5)

Maintenance activities on slopes in order to secure an increased snow depth in the operating season is also a way to adapt to climate change. This can be done by preparing slopes or by removing rocks from the slopes in the off-season. Land contouring, with the help of strategic tree planning, is also a common strategy in order to avoid unfavourable snow melt. (Scott & McBoyle, 2006, p. 8)

The issue with such interferences in nature is that the usage of heavy construction machines, which are often needed in order to undertake such measures, will impact nature enormously. Mainly in higher altitudes or elevations, the recovery of the fauna and flora can take decades. The higher the alteration of the ecological system, the longer it will take to recoup properly. (Miehle, Haas, & Lutz, 2008, p. 4) In addition, an investigation showed that areas in which machines were used to grade different areas, the vegetation suffered enormously from the consequences. This was made visible through the low cover of vegetation, plant growth and diversity of species. When examining this impact in terms of the future, the consequences of such interventions are tremendous and possibly irreparable. (Agrawala, 2007, p. 37)

Many ski resorts have managed to move ski slopes to higher elevations or to more favourable areas, with the aim of achieving climatic benefits of areas in higher altitudes or better climatic conditions. This could be done by the development of slopes which face north, where the snow usually remains more consistently. Considering the fact that the tourist generally prefers a sunny ski slope, this adaptation method is questionable. Another method could be the movement of skiing business to higher altitudes in order to ensure lower temperatures. Another global trend is glacier skiing, which is generally done in the summer months. Glacier skiing will allow specific areas to offer skiing at early times as well as times where skiing in lower regions is not possible because of a lack of snow. The retreat to the glaciers, however, is not perceived as the adequate strategy to cope with climate change by various organizations. This is because of the outlook for the Alps in the next 50-100 years, which suggests that by 2050 about 75 % of the glaciers in Switzerland will have disappeared and by the year 2100 glaciers will have vanished fully. (Agrawala, 2007, pp. 38-40)

3.4.3.2 Managerial Strategies

Climate change has caused the skiing season to shift on a yearly basis. The months before Christmas and New Years are not exactly what one would call economically successful. It is forecasted that the consequences of climate change will lead to an increased demand for artificial snowmaking, which suggests the simultaneous rise of costs. The question to be asked is whether the profit created will be able to outweigh these costs. A way to adapt to such a scenario could be the reduction of ski

slopes available to the visitors, so that snowmaking activities can be focused on one specific area. Questionable is, whether this method will satisfy the paying customer. Financial tools to adapt and cope with climate change could be the formation of snow insurances or weather derivatives in the winter tourism industry. A weather derivative is a tool which protects ski area operators from possible financial loss because of non-reliable snow conditions. Such a contract is generally winded up between two parties, who have made an agreement on an amount of money, which will be exchanged as a result of weather conditions during the time of the contract. (Agrawala, 2007, p. 51)

The issue with such contracts may be that mainly in alpine areas, weather scenarios change from town to town. This could cause an issue with the number of people who are suspect to the same risks, and therefore this method is often not the best to choose. A marketing incentive used by many skiing destinations, is the aggregation of two or more skiing areas and the offering of one ski-pass, which is valid for more than just one skiing area. Such an incentive could pose numerous benefits, like a decrease in personal costs as well as equipment costs. Moreover the tourists will have the possibility to choose from a larger variety of slopes and have better chances for snow reliability. Such business aggregations could minder the vulnerability to climate change and simultaneously provide for higher cost efficiency within the different skiing areas. (Agrawala, 2007, p. 53) Skiing destinations should also consider the transformation of a solely skiing industry towards a winter theme park, in order to be able to provide visitors with an alternative activity if skiing is not possible because of bad weather conditions. The provision of wellness and spa facilities, fitness centers, tennis and squash facilities, dog sled-rides ...etc. are only a few possibilities to enlarge the tourism product offered. (Scott, et al., 2008, p. 92)

Another adaptation strategy could be the transformation into a year-round tourism destination. Such a shift would reduce the vulnerability of mountain destinations to favourable weather conditions in the winter months significantly and allow them to enhance their profitability. The implementation of such a shift however, implies the provision of an attractive tourism product offered to the potential visitor of the destination. Mountain biking, swimming, hiking and other activities need to be advertised in order to enhance the attractiveness of the alpine region as a holiday

destination for tourists. A case study in Switzerland has however resulted, that tourists spend about 7.9% on transportation in the summer months. In the winter months a 3 times higher percentage of 22,9 % could be detected. (Agrawala, 2007, p. 55)

3.5 The Linkage between Adaptation and Mitigation

In the past chapters adaptation and mitigation have been described as strategies to cope with climate change. Both strategies are equally important for sustainable development. Mitigation of, and adaptation to climate change are highly interconnected and serve the same purpose: the reduction of unfavourable consequences of climate change. (Davoudi, Crawford, & Mehmood, 2009, p. 12)

Rogner et. al. (2007) state: “adaptation and mitigation can be complementary, substitutable or independent of each other” (Rogner, et al., 2007, p. 101). When referring to a complementary relationship of adaptation and mitigation, the high dependency of these two methods is meant. This dependency is created because of the fact that firstly an effort in reduction of GHG emissions must be made, which following will provide for a less cost-effective adaptation process. Stern (2007) suggests that a collaboration of both methods is needed in order to achieve the best possible result and avoid long-led costs. (Stern, 2007, p. 458)

Substitutable application will only be possible up to a specific point, due to the high dependency of both strategies, since strong and intense mitigation will always be needed in order to reduce the risk of residual damages to the climate system. Destinations shall seek to implement both strategies simultaneously, in order to cope with the current climate situation (adaptation) and minder the risks, through intense reduction of GHG emissions, of future damages to the climate system (mitigation). (Simpson, Gössling, Scott, Hall, & Gladin, 2008, p. 33)

Dubois and Ceron (2006) describe mitigation and adaptation as two sides of one coin in the tourism industry and underline their interdependency with that statement. The author David Weaver (2012) however believes that the adapting society and mitigating society may come to a point in which conflicts may arise. This is mainly because of the decision making process in order to allocate scarce resources in order

to cope with climate change. Weaver (2012) states “contrasting ideological foundations are apparent insofar as adaptation often constitutes a rational “capitalism-compatible” response by individual businesses to actual or high probability threats.” (Weaver, 2011, p. 10) This phenomenon can be observed in skiing destinations in which high investments into snow-making machines are a common practice. Even though adaptation is a tool which is identified as a method to cope with climate change, such measures, ironically will contribute to climate change and the consequences of it. (Weaver, 2011, pp. 10-11)

In general current research indicates that both, adaptation and mitigation are reasonable tools to cope with climate change and are needed in order to reduce future impacts. Adaptation indicates that money will have to be invested in order to be able to undertake business, if warming scenarios take place as predicted. The question whether destinations and their organizations will be able to afford these investments is also of significance. Measures of mitigation could be seen problematically, due to the well-known “attitude/behaviour gap” established by Stoll-Kleemann et. al. (2001), in which psychological barriers were identified as justifications, for not changing behaviours, in order to reduce climate change. (Stoll-Kleemann, O’Riordan, & Jaeger, 2001, pp. 112-113)

4 Methodology

The results of this dissertation are based on qualitative research. The method of qualitative research seeks to “describe life-worlds from the inside out, from the point of view of the people who participate (...) it seeks to contribute to a better understanding of social realities and to draw attention to processes, meaning patterns and structural features.” (Flick, Kardorff, & Steinke, 2004, p. 3).

Qualitative research has a number of advantages. With its focus on smaller research fields and its potential to create a deeply-involved process with the subjects, it is one of the most acknowledged methods. In quantitative research methods, significance is mostly paid toward larger amounts of data, which leads to standardized processes and a very distant perspective of the outcome. Sometimes this method can be perceived as only the tip of the iceberg and not provide enough in-depth insight. When undertaking qualitative research the following needs to be considered. Research is undertaken very naturally and with no strict rules or conditions, which will allow for honest and valuable answer giving, while a strong focus is placed on everyday routines as well as on the daily routines of the interviewees. (Flick, Kardorff, & Steinke, 2004, pp. 5-8)

One of the most significant aspects of qualitative research is its ability to provide an insight into the human perspective of an issue. This is shaped through the different opinions, experiences, emotions and beliefs of the subjects. The identification of intangible factors is also more effective in qualitative research. Such factors could be social norms, gender aspects or religion. (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, p. 1) After collection of the data, the interviews are analysed and interpreted. (Flick, Kardorff, & Steinke, 2004, p. 8) Qualitative research seeks to answer questions, while using a predefined set of procedures in order to answer a specific question. Moreover, evidence is collected and specific findings are produced which were not established prior to researching. (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, p. 1)

Qualitative research seeks to understand a problem from the subject’s perspective; this could be a specific population group or in the case of this dissertation a specific destination or stakeholders of a destination, as they may have different

perspectives. When trying to gather information about cultural aspects, values and opinions, as well as the behaviours of a specific group of subjects, qualitative research is the approach to choose. (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, p. 1)

The three most commonly used methods when undertaking qualitative research are participant observation, in-depth interviews and focus groups. In this dissertation the author chose the method of in-depth interviews, which will allow for a very personal insight into the topic of climate change. (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, p. 2)

4.1 Saalbach-Hinterglemm as a Research Area

Saalbach-Hinterglemm, as shown in Figure 1, is a valley in the Federal State Salzburg in the area of Pinzgau, which is in the southwest of Salzburg. The political administration unit, however, is named Zell am See. According to Skicircus Saalbach Hinterglemm Leogang (2011), Saalbach-Hinterglemm counted 2,900 inhabitants in 2011. The altitude in Saalbach-Hinterglemm is between 1003 and 2100 meters above sea level. Available beds ranging from three to five star hotels amounted to 18,783, which generated overnight stays of 1,400,175 in the winter of 2011. The area counts about 200 km slopes, 90% of which are facilitated by snowmaking machines, made possible by eight snowmaking ponds. There are about 55 ski-lift establishments with a capacity of about 100,000 persons/hour. Of these, 17 are ropeways, another 17 are chairlifts and 21 are T-bar lifts. (Skicircus Saalbach Hinterglemm Leogang, 2011)

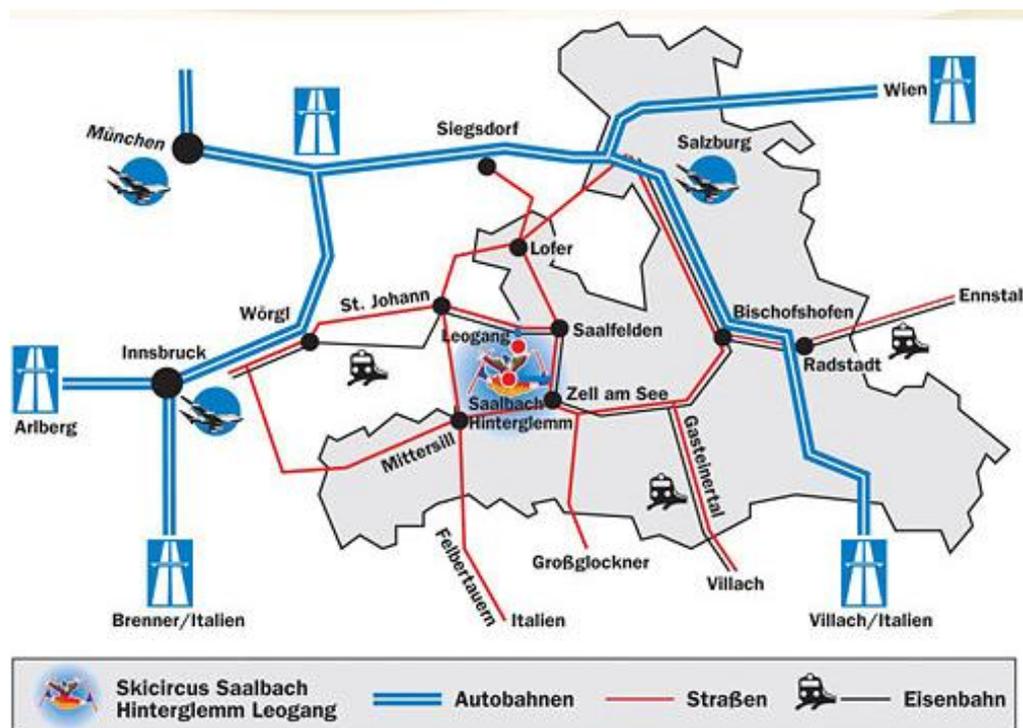
The availability of over 10km of cross-country tracks is also part of the winter experience Saalbach-Hinterglemm offers. The most important asset Saalbach-Hinterglemm offers its guests is the fact that all slopes are connected and taking a bus from one slope to the other is not necessary. Accordingly, the buses are generally used when people travel back to their hotel at 4:15 p.m. when the lifts close. Most tourists travel to Saalbach-Hinterglemm by car. The closest train station to Saalbach Hinterglemm is Zell am See, which is approximately 20 minutes from Saalbach Hinterglemm. Tourists may either catch the bus from the train station or travel by taxi into the ski area. (Skicircus Saalbach Hinterglemm Leogang, 2011)

Other activities offered in the area are:

- Ice skating
- Tennis
- Sledging
- Horse sleigh riding
- Snowshoe hiking
- Quad-Parcours
- Paragliding

Skicircus Saalbach-Hinterglemm Leogang has managed to organize a number of significant events, like famous events like the Swatch Snowmobile Challenge or also Rave on Snow, in the months starting in December and ending in March.

Figure 1: Map Saalbach Hinterglemm



Source: (Sporthotel Ellmau)

4.1.1 In-depth Interviews

The most important aspect when undertaking in-depth interviews is creating a comfort zone for the interview partner, as well as making the interviewee understand that the researcher needs to learn from the experience and knowledge

of their subjects. Research has shown that this aspect generates a rewarding feeling for the subjects. The fact that their knowledge is wanted in a specific case is perceived as flattering to most subjects. The main goal of the interviewer should be to receive the most information possible from the interviewee. This can be accomplished by asking questions quite neutrally and attention should be paid to the answers given, which are followed by further questioning to go into depth on the topic. Showing agreement or disagreement with the answers given by the subjects is not allowed, due to the fact that this could encourage the subject to go into a specific direction with the following questions. (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, pp. 29-30)

In-depth interviews are generally recorded with a Dictaphone and the interviewer takes notes. Notes may include impressions of the interview, possible limitations and of course the content of the interview. In-depth interviews are generally analysed by typing up transcripts. (Mack, Woodsong, MacQueen, Guest, & Namey, 2005, pp. 29-30)

4.1.2 Study Design

The research questions aimed to be answered in this dissertation are:

- What is done by tourism providers to decrease climate change?
- What is done to manage the impacts of climate change?
- What is used more often? Mitigation or adaptation – and if both are used, are they used in a complementary or independent way?

The author established an interview guide, which can be found in Appendix 2, in which questions are structured into five groups. The first section of the interview guide includes supplementary questions about the participants' overall perspective of how they believe their destination could possibly develop in the future. Moreover, the author seeks to develop an understanding of whether climate change is even a current issue in the research area.

Section two gives an overview of the general knowledge about climate change and the participants' opinion about the topic. Section three focuses on the relevance of

climate change for the destination or the different organizations. Additionally, it seeks to explore whether climate change is perceived as an obstacle among the participants. In order to find out about the strategies used within the organizations the author developed section four, in which the strategies of adaptation, mitigation and a combination of these methods is analysed.

4.1.3 Limitations

The author perceived the conducting of the interviews as quite uncomplicated. Due to intense research prior to the interview dates, the author could identify which interview partners would be of significance for the present dissertation. All interview partners are well-known to the author, due to the fact that the research area has been the winter travel destination for the author for the past 10-12 years and all participants agreed to an interview immediately.

Participant 1 showed up at the interview appointment, but told the author that they could not answer their questions due to an intense headache. Instead, the interviewees' daughter was questioned, which was quite interesting because of the fact that the daughter was 30 years old, compared to the majority of interview partners, who were well in their 50's as well as 80+. The difficulty perceived in this interview was that the interviewee was in a rush to get elsewhere and the author felt that towards the end of the interview they rushed through the questions, rather than answering them accurately and thoughtfully. What was interesting, however, was that this participant seemed to be rather well informed about the topic of climate change, so there was not much need to explain different terminologies.

A barrier perceived by the author was that almost all participants had a problem with the term "destination" and so the author decided to use the name Saalbach-Hinterglemm instead. Participant 2 is 89 years old and turned out to not be as talkative as the author would have assumed. The author perceived this interview as quite unsatisfying because it seemed as if the needed information was not provided and mainly short answers were given to the questions. Interview partners 3 and 4 were perceived as satisfying interviewees and answered all questions thoroughly and with considerable interest and care. All interviews lasted between 40-60 minutes.

5 Findings

5.1 Analysis of In-Depth Interviews

Research has shown several ways to mitigate or adapt to the current climate conditions, not only through actions to cope with irreparable changes, but also strategies to reduce climate change and following provide for a greener environment. In this dissertation the author has interviewed four participants from the tourism industry in Saalbach-Hinterglemm. In order to introduce the interview, the author decided to start questioning the participants supplementary questions about their destination and how they believe their destination will develop in the future. All interviewees' stated that Saalbach-Hinterglemm has developed enormously over the past years and all were of the opinion that it will continue to grow strongly in the future. Due to the fact that all participants were aware of the topic of the interview and the authors' dissertation, climate change was mentioned but immediately trivialised by the enormous technological possibilities of artificial snowmaking.

Climate Change Impacts on Tourism

When questioning the participants about possible impacts that climate change has on the tourism industry, most participants stated that there is no impact and no impact is expected for the next years. Two participants stated that they do not really worry about the possible consequences. One interviewee said that they believe that their son would probably have to worry about this at some point of time. Another participant mentioned the size of the valley and its limited capability to contribute to a change. The other two participants mentioned the financial aspect of climate change. Both believed that if temperatures continue to rise, the costs will rise and then there will be an increase of prices for the tourist as well.

“ (...) ich glaube dass einfach erhöhte Kosten auf uns zukommen werden im Zuge der Schneeproduktion. Ich denke dass die Entwicklung dahin gehen wird, dass die Schneekanonen auch bei Plusgraden produzieren können. Nur wird das mehr Energiekosten und mehr Wasserkosten erzeugen und es wird extreme aufwendig werden.”

„(...) I believe that costs will increase due to the incremental need of artificial snowmaking facilities. I believe that the development of snowmaking machines will focus on machines, which will be able to produce snow at plus-temperatures. This will create more energy, as well as water costs. I believe it will be enormously expensive. (Sofia Enn, Marketing Manager Hotel Kendler)

However when pressed about the topic, most participants stated that if climate change develops as dramatically as communicated by the media and experts, the destination will not exist like it has until now. The skiing industry was frequently named as the unique selling point of the destination and if that was not possible anymore, Saalbach-Hinterglemm would vanish as a tourist destination and so would the businesses in the destination. In order to figure out the level of perceived threat amongst the participants, the author decided to question them as to whether they are scared of losing their business to climate change. The following could be detected:

“Nein bedroht nicht. Ich meine man kann sich zu Tote fürchten, aber naja. Man kann auch positives sehen. Als Bauer oder Landwirt sagt man „naja vielleicht wachsen ja einmal die Bananen bei uns!“ (lacht)

“No, I do not feel threatened; I mean of course one can be scared to death. One could also see the positive side of it. As a farmer or an agriculturist you might say: perhaps we will be able to grow bananas one day” (laughs) (Sepp Kröll, shareholder mountain railways Saalbach-Hinterglemm)

One interviewee stated that they do not perceive it as a threat but more as a fact and said that if climate change truly became severe one day, it is clear that the business would have to be closed.

“Für mich ist es eher wie eine Übermacht die erst dann zu Stande kommt wenn alles Übrige scheitert. Wie z.B. neue Technologien, Finanzen etc. „

“For me personally it is more like a superior force, which will happen if everything else fails. I mean things like new technologies, finances and so on.” (Sofia Enn, Marketing Management Hotel Kendler)

When asking the interviewees about whether the topic climate change is being discussed within the organization and amongst the employees, two participants stated that this is not a topic to be discussed.

“Überhaupt nicht, warum sollen wir das thematisieren. Klimawandel ist vorhanden im kleinen Ausmaß aber warum soll ich das thematisieren? Es ändert deshalb nichts und bringt auch nichts!“

“Not at all, why would we make it a topic? Climate change is happening to a small degree but why should we make a big deal out of it? It doesn’t change anything nor does it help anything!” (Josef Enn, Resident)

The author perceived that the overall knowledge about climate change was more superficial than anything else. The participants knew that climate change exists and that certain areas are endangered because of the increasing temperatures, but that was the extent of it.

“Viel hört man in den Medien, dass der Meeresspiegel ansteigen soll, das die Pole abschmelzen und so weiter. Aber ich ärgere mich immer, dass wir in Österreich als so kleines Land so extreme Auflagen haben. Das kann man bei uns z.B. in der Landwirtschaft sehr gut beobachten. Das geht schon bei den Landmaschinen los, wo man weiß Gott für Dieselmotoren haben muss. Was das bringt weiß ich nicht und dann gibt es wieder andere Länder, welche wieder extreme Dreckschleudern sind, wenn man so sagen darf!“

“I hear a lot in the media, that the sea level is supposedly rising or that the ice caps are melting and so on. However, I always get mad when I know that we in Austria, as such a small country, have such extreme requirements. This can be observed perfectly in agriculture, in which agricultural machinery has to have, Jesus knows, what kind of engines. I don’t really know what the purpose behind it is. Especially when looking at other countries which are enormous ‘dirt bags’ if I may say so.” (Anton Hasenauer, Owner Hotel Unterschwarzacher)

Only one participant stated that they have given thorough consideration to the topic, but perceives climate change as only a minor problem. Moreover they stated that within the next 50 years nothing will change and skiing will be possible just like it has been. However, the interviewee does think that building a skiing area at 500 m altitude is definitely not contemporary; still, 1000 m and upwards would not be a problem whatsoever. Moreover, they would not support building a new cable car without building artificial snowmaking facilities at the same time, which secure the profitability of the ski lift. One interviewee mentioned:

“Klimawandel (schmunzelt), ich sehe das, ich lese das und ich weiß das im bescheidenen Ausmaß aber mich persönlich betrifft es eigentlich nicht! Ich übertreibe nichts, ich unterbiete nichts und lebe normal und folglich bilde ich mir ein ich nütze oder schade dem Klima nicht!”

“Climate change (smiles benignly), I see it, I read about it and I know about it to a modest extent, but it doesn't affect me personally! I don't overdo anything, I don't undersell anything and I live normally and hence I believe I do not help nor harm the climate.” (Josef Enn, Resident)

One participant did state that they felt quite helpless with regard to climate change and described it as a global topic.

“ (...) wenn sich global in der Mentalität der Menschen nichts ändert wird es schwierig sein (...) ich glaube es muss sich global in der Wertigkeit der Menschen etwas ändern (...) Momentan ist es wohl eher mehr wie “hinter mir die Sinn Flut”

“(...) if there is no change in the people's mentality on a global level, it will be difficult (...) I believe that there has to be a change in people's priorities (...) currently the situation is more like 'devil-may-care' (Sofia Enn, Marketing Management Hotel Kendler)

Overall the participants did not perceive climate change as a severe problem in their destination. They stated, that with the help of technological equipment, primarily artificial snowmaking, nothing will change at their location. The participants were aware of the fact that climate change is a pressing topic but also mentioned that there are other countries which need to change behaviour before they will have to.

A high level of threat could not be detected in any of the interviews and each interviewee talked about the impacts climate change has on tourism in a very distant manner.

Mitigation Strategies

When questioning the participants about the measures which are undertaken in order to reduce GHG emissions within the organization/destination, all participants named the usage of modern technological equipment in order to work more efficiently. Moreover, when the author named specific methods which could be used in order to mitigate climate change, the participants seemed to understand the question more thoroughly and answered the question in more detail. Most of the participants named the installation of improved heating systems. One participant had a very clear view on the individual's personal duty to mitigate climate change when he said:

„Naja es ist so, wenn man heute etwas erneuert oder umbaut dann bekommt man schon die behördlichen Auflagen dafür was Sache ist und wenn ich mich daran halte ist alles gemacht was behördlich vorgeschrieben ist (...) ich sehe da nicht sehr viel Eigeninitiative die man einsetzen muss!“

“Well if you refurbish or remodel something these days, the state will give you specific requirements anyhow, and if I fulfil these requirements I will have done everything that needs to be done.“ (...) I do not really think there is much need for own initiative. (Josef Enn, Resident)

Technological Strategies

Changing heating installations and introducing new equipment were technological aspects named in all four interviews. It was interesting that one participant mentioned:

“Neue Geräteanschaffung wäre eine Möglichkeit, (...) aber ein neues Gerät kommt dann wenn das alte kaputt ist und nicht weil es Energie spart. Also ganz ehrlich... (denkt nach)“

“Well buying up to date equipment would be a possibility (...) but a new machine will only be bought, when the old one is broken, and not because it saves energy. In all honesty...” (thinks) (Sofia Enn, Marketing Management Hotel Kendler)

The participants questioned in the hotel industry all stated that they have implemented card-reading systems for guest rooms, which ensure that no lights are on when guests are out of the hotel room. It was mentioned, however, that such a system was installed for economic and not for environmental reasons. Furthermore, one participant stated that they have implemented a heat-recovery-engine, so that the water that runs back from the bathtub can be reused in the form of energy. One participant also mentioned a ski area in the United States and their energy wastage:

“In Amerika beispielsweise gibt es eine Skidestination in welcher bestimmt 10-20 Skidos in Verwendung sind (...) Das stinkt wie der Teufel. Das gäbe es bei uns nie. Da werden wir noch schärfer(...) Ebenfalls achten wir darauf bei der Pistenbearbeitung mit guten Geräten zu arbeiten und versuchen Leerfahrten zu vermeiden.“

“When looking at skiing destinations in the United States, some have 10-12 Skidos, (...) It smells like hell. This would never happen here. We will even be stricter with it (...) we are also paying attention to use high-quality technological vehicles for slope contouring and try to avoid empty drives.” (Sepp Kröll, stakeholder mountain railway company Saalbach-Hinterglemm)

One interviewee also mentioned the financial aspect and the need to earn money in order to be able to effort such improvements in technologies.

“Umbauen und investieren ist ja schön gesagt aber man muss auch das Geld verdienen um sich das leisten zu können. Das ist alles eine Sache die finanziell abgehandelt werden muss“

“Rebuilding and investing is all well and good but money still has to be made in order to afford such things. It is the financial aspect, which needs to be thought of.” Josef Enn, Resident)

When the interviewees were questioned about in-house practices in order to mitigate climate change with the help of new technologies or a reduction in energy consumption, the following was stated:

“Um da jetzt ehrlich zu sein ist es bei uns wohl eher so dass Kosten und nicht Energie gespart werden. Das bezieht sich zum Beispiel auf Stromverbrauch. Ob das für den Klimawandel ist (denkt nach) also ich denke dass wir dieses Bewusstsein in unserem Hotel noch nicht haben (...) es befindet sich wohl eher in den Kinderschuhen!“

“To be honest with you, when we try to reduce energy within our hotel, it probably has rather costly than energy-saving reasons. (thinks) I believe in our case we are still at the very beginning in terms of awareness of the need to do something about climate change!” (Sofia Enn, Marketing Management Hotel Kendler)

Another participant added the possibility of outsourcing the washing unit, in order to reduce costs and energy. Two participants mentioned a newly installed employee unit, which was established just recently. It includes “card-reading-systems in each employee unit, however it was mentioned, that this was not done because of specific energy savings, but rather to prevent the employee from leaving the stove on when leaving the house. All participants mentioned that such changes have been undertaken in order to save costs and not to save energy.

Educational Strategies

One participant stated it would be hard to motivate employees to reduce energy consumption because of the fact that they simply do not care enough. He believes that telling employees how to behave would not cause them to change their behaviour.

“Also dem Angestellten, der hier arbeitet, ist das egal. Das interessiert den nicht! (lacht). Er macht es vielleicht zwei Mal und dann vergisst er es wieder, weil er es gar nicht wahrhaben will. Energiesparmaßnahmen im Personal einzurichten ist sehr schwer, denn sie sind dafür sehr phlegmatisch!“

“Employees who work here do not care about such things. They are not interested (laughs) They might do it twice and will forget it after that, simply because they don’t

want to even see it. Measures to save energy in the staff section are very hard to introduce, because staff is quite phlegmatic about such things” (Josef Enn, Resident)

Educational practices were only mentioned in two interviews. One participant stated that for the past two years they have had specific presentations on the topic climate change and mentioned the process of exchanging information with other ski areas.

“Wir fahren z.B. nach Südtirol oder in ein anderes Skigebiet um Erfahrungsaustausch auf höchster Ebene zu machen. Ziel ist es die Meinungsbildung der Mannschaft soweit hinzubekommen und auch eine gewisse Sensibilität zu entwickeln. Wir machen auch gegenseitige Kontrollen. Bedeutet ein Skigebiet kommt nach Saalbach Hinterglemm und sieht sich die Gegebenheiten an. Das Selbe machen wir auch. Wir sehen uns das Skigebiet von unserer Warte an: Wo sind Fehler, wo kann man was verbessern usw. „

“What has been done is for instance the observation of a different skiing area in order to identify possible problems or lacks in that area. We have done that for instance in the south of Tirol. It is information exchange on a really high level. The goal is to achieve a certain level of awareness amongst our staff members, in order to achieve sensitivity about the topic. We basically ‘audit’ each other: This means, one skiing area visits Saalbach-Hinterglemm, looks at the situation and vice versa. We look at the ski area and judge from our perspective what the problems are and what can be improved” (Sepp Kröll, shareholder of mountain railway Saalbach-Hinterglemm)

The other participant even mentioned that they were made aware by a guest to “go-greener” and stated that many guests have left such surveys. Moreover they have mentioned the following:

“Auf was wir sehr viel Wert legen, ist dass wir vor allem im Wellnessbereich darauf achten weniger Wäsche zu haben. Wir bieten dem Gast an, durch eine ökologische Karte die in jedem Zimmer steht, seine Handtücher bzw. Bademäntel entweder zu behalten und sie auf den vorgesehenen Platz zu legen, oder zur Wäsche zu geben, indem sie die Wäsche auf den Boden legen. (...) was wir auch noch andeuten, ist in

Sachen Heizung weg von Erdgas zu gehen und eine andere Alternative in Anspruch zu nehmen.“

“What we are really paying much attention to is the usage of towels within the hotel and mainly in the wellness area. We set up a “think-green” card in each of the guest rooms in order to raise awareness that, if the guest wishes for the towel to be exchanged, they should place it on the floor. Otherwise the guests should just hang it up (...) what we are also thinking about regarding heating is to move away from natural gas and look for an alternative” (Sofia Enn, Marketing Management Hotel Kendler)

When the participants were asked about financial and business aspects when choosing a strategy, the following response was given:

“Es spielt beides eine große Rolle. Die Wirtschaftlichkeit muss gegeben sein, sonst hat es keinen Sinn. Aber in erster Linie muss der hohe Lebensstandard und auch die Erwartung des Gastes erfüllt werden und dieser verlangt Energieeinsatz aber der muss so effizient wie möglich sein.“

“Both play a huge role. The aspect of cost efficiency must be a given, because it wouldn't make sense any differently. But primarily the desires of the guest must be pleased and a guest demands the use of energy. However, this should happen in the most efficient way possible.” (Josef Enn, Resident)

Another participant named that personally accepting and realizing that climate change is a pressing topic, as a factor to implement mitigation strategies. Force of habit was cited as a problem. The participant also named politicians as a major role model, and pointed out that it was their duty to change behaviours. They also mentioned the enormous responsibility of the media and called them opinion formers.

When questioning about the roles of the guest and employees in order to put these strategies into action, all participants were of the opinion that those are the people that actually make such strategies work. If they are not in alignment with the organizations' will to reduce climate change, they will not be realizable. It was

mentioned that it is of importance to continuously bring up the topic in order to give it a level of priority within the organization.

“Das darf nicht einfach gesagt werden oder ein Brief versandt werden. Bei uns muss jeder Mitarbeiter unterschreiben, um sicher zu gehen, dass gewisse Richtlinien eingehalten werden!“

“Telling people to act differently is not enough; also a letter is not enough. In our organization all employees have to sign a paper, which includes certain regulations and our employees will have to act accordingly!” (Sepp Kröll, stakeholder mountain railway company Saalbach-Hinterglemm)

Improvement in heating installations and introduction of energy efficient machines were the major mitigation strategies named by the participants. One interviewee also mentioned the avoidance of empty drives in their business. The reason for such changes were however not to reduce climate change but rather to save energy in order to save costs. Therefore the motivator for the different organizations was the cost-factor and not the mitigation of climate change. Only two interviewees explicitly named educational practices which are undertaken within the organization and in the guest sector.

Adaptation Strategies

Technological Strategies

The technology of artificial snowmaking was frequently mentioned by all four participants. Moreover it was mentioned that due to this technology, the destination has developed to have an enormously high snow-reliability.

“ (...) wir sind noch nie so schneesicher gewesen wie zurzeit, das ist keine Frage, so wie es die technischen Möglichkeiten der Beschneigung erlauben. Wir hatten vor 50 oder 60 Jahren schon Winter in denen es keinen Schnee gab (...) damals hat noch niemand von Klimaerwärmung gesprochen.“

“ (...) we have never been as secure with snow like we are today, as there are great possibilities with artificial snowmaking. 50 or even 60 years ago we had winters in

which there was no snow at all (...) back then nobody even talked about climate change. (Sepp Kröll, shareholder of Saalbach-Hinterglemm mountain railways)

One participant mentioned the trust they had in the mountain railway company of the destination. They believe that these companies have engaged themselves with the topic climate change for the past 25 years and the continuous work on technological equipment for artificial snowmaking will secure the tourism business of the destination.

“(...) die Bergbahnen denken sehr fortschrittlich. Ich denke globale Erwärmung ist kein neues Thema für sie. Schneekanonen gibt’s ja immerhin schon seit 25 Jahren. Man sehen dass die Bergbahnen definitiv am Zahn der Zeit waren und daher auch immer weiterentwickeln. Auf natürlichen Schnee ist ohnehin kein Verlass!”

“(...) the railway companies are really advanced in that sector. I believe global warming is definitely not a new topic to them, realizing the fact that artificial snowmaking machines were first introduced in this area 25 years ago. One can see that the railway companies are indefinitely up to date to this topic and so they are continuously trying to improve technologies. I mean you can really not trust in natural snow anyway!” (Sofia Enn, Marketing Management Hotel Kendler)

Two participants mentioned the ecologically-friendly benefits of artificial snowmaking. One participant mentioned that artificial snowmaking is the release of water and air and questioned why this could possibly pose a risk. The second like-minded interview partner stated:

“Im Laufe der letzten Jahre hat man gesehen, dass die Beschneigung für die Bodensituation überhaupt kein Problem darstellt. Es hat sich herausgestellt, dass der Kunstschnee total unproblematisch von der Zusammensetzung ist und sogar besser als der Naturschnee. Der Kunstschnee vereist viel mehr und verdichtet den Boden viel mehr, weil er luftiger ist. Es wird nie so eine Auswitterung geben wenn Kunstschnee anstatt von Naturschnee, verwendet wird.

“Over the past years it was detected that artificial snow does not pose a risk for the environment. Artificial snow is very unproblematic and its composition is even

better for the environment than natural snow!” (Sepp Kröll, shareholder mountain railway company)

Moreover the types of gas used for vehicles were mentioned by one participant who stated that they tried to change the type of fuel they used for the snowcats, however found out that gas was not compatible with the technological standards of the machines:

“Wir hätten versucht Gas als Treibstoff zu verwenden. Leider hat sich herausgestellt, dass die Pistenraupen technisch leider noch nicht so fortgeschritten sind.“

“We tried to introduce gas as fuel for the snowcats. However, we discovered that the machines are not advanced enough technologically!” (Sepp Kröll, shareholder mountain railway company)

Managerial Strategies

The author introduced this topic with exemplifying activities that are being done in order to ensure the success of an event and mentioned a very popular event in the area of Saalbach-Hinterglemm: The Swatch Snowmobile Challenge. What the area has done is to stock snow from the previous year somewhere in the shade at a higher altitude over the summer months. The snow was then covered with lumber and following with a layer of plastic.

The author tried to figure out the general attitude of the participants with regard to measures like transporting snow with helicopters or trucks, in order to provide for snow-security. Generally all participants perceived the insurance of the event, through stocking snow, as a very positive activity and could not really see the negative aspect of it. The participants seemed to all have the same opinion regarding the Swatch Snow Mobile Challenge. One participant stated:

“Das sehe ich so: Das ist ein einmaliges Event welches wirklich gut ist und dem Ort auch wirklich viel, in Form von Publicity und Werbung, bringt. Es ist auch für mich das wichtigste Event im ganzen Jahr und daher für mich persönlich vollkommen in Ordnung.“

“Well, I think it is a unique event, which is really good and is really positive for the valley in terms of publicity and promotion. For me personally it is even the most important event in the entire year, so it is totally ok in my opinion” (Sofia Enn, Marketing Manager Hotel Kendler)

Sepp Kröll explained the reason behind it more thoroughly and said that since a lot of publicity was devoted to this event, cancelling would mean bad publicity for the valley as well as enormous costs that could not be coped with. The reason behind the snow deposit is to minimize the risk of cancelling the event or to even ensure it.

Kröll also stated that this method is also more cost-effective than getting snow from another skiing area and transporting it to the destination. He did, however state that for ski races or other larger sportive events the transportation is not feasible and simply unacceptable. When the participants were queried about actions that they undertake in order to adapt to the current weather conditions, two interviewees stated that there is nothing to adapt to. This statement was explained by the belief that there will always be a time in which there will be enormous snowfall and this will allow for additional artificial snowmaking. One participant seemed to be getting upset and stated:

“Was verstehen Sie darunter, was soll da eintreten. Wenn die Sonne scheint, scheint die Sonne. Wenn es regnet, regnet es!”

„What do you mean by that, what shall happen. If the sun is shining, the sun is shining. If it is raining, it is raining! (Josef Enn, Resident)

When asked about potential back-up capacity within the organization, if the worst-case scenario took place, all participants agreed that this would lead to an absence of guests. It was also stated several times that the interviewees do not think that there is any other activity to offer aside from skiing. One participant stated that in the pre-season it is very common that people just go skiing on the glacier in Kaprun, but also stated that a driving time of 40 minutes is a bit of a hassle. They also stated that there is no way that guests would come to Saalbach-Hinterglemm in the winter months, knowing that there is no snow, when they have the possibility to go to areas in which skiing is still possible. They also mentioned that if there was no more snow

the entire concept of the destination would have to be changed, so that the offer in the area would be unique and worth it for people to travel to the destination. When the author tried to explore managerial actions, which have been implemented to cope with bad weather conditions at this point in time, all interviewees named wellness and spa areas.

“(…) der Spa-Bereich ist ein reines Zusatzprodukt und kein USP (Unique Selling Proposition). Das bedeutet wenn es bei uns schneit oder regnet, möchten wir den Leuten die Möglichkeit geben in den Spa zugehen, anstatt vorzeitig abzureisen. Aber Skifahren bleibt Nr. 1 und kann auch nicht ersetzt werden.“

“ the Spa-area is an additional product that we are offering and certainly not a USP. This means, if there is a snowstorm or it is raining, we want to provide our guests with the possibility to go to the spa instead of leaving earlier. But skiing remains the number one tourist attraction and we will not be able to replace that” (Sofia Enn, Marketing Management Hotel Kendler)

When mentioning the impact climate change could have on tourists' will to travel to a destination in which there is no snow, one participant mentioned that it could be possible that some tourists may start to enjoy the mountainous regions even more, because of cooler temperatures. Should such dramatic warming scenarios take place, it was mentioned that travellers will seek destinations which can fulfil their desires. When questioned about whether the participants have thought about changing the tourism product that they could offer to guests if there is an absence of snow, an interviewee said the following:

“Momentan wird über so etwas wenig nachgedacht. Wir haben gerade wieder viel Schnee und bis Mitte nächste Woche kommt noch über 1 Meter dazu.“

*„Currently we are not really thinking about something like that. We have a lot of snow right now and till next week we are supposed to get another meter of snow!“
(Anton Hasenauer, Owner Unterschwarzacher Hotel)*

The significance of technological adaptation strategies was very evident in all four interviews. It was repetitively mentioned that artificial snowmaking allows the destination to operate on a very high level. Managerial practices, like moving to higher altitudes, changing to a year-round tourism destination or regarding different tourism products offered to visitors, were not truly mentioned throughout the all four interviews. The participants seemed to have not regarded that the climate situation could develop to be that severe in the next years. All interviewees' from the hotel industry mentioned the possibilities of wellness, however clearly stated that this was only an additional product and could not replace skiing as the major tourism attractor.

The Linkage between Mitigation and Adaptation

When questioning the interviewees about how they perceive the necessity of implementing the measures of adaptation and mitigation, all interviewees mentioned artificial snowmaking as the most important tool, which ensures profitability for the skiing destination. A very significant statement could be collected in the interview with the shareholder of the mountain railway company:

„Man muss versuchen die Abgase zu mindern, das ist unser ökologischer Auftrag. Wenn das erreicht ist wird man weniger Energie brauchen und sich dementsprechend weniger anpassen müssen!“

„One will have to try to reduce the emissions, this is our ecological duty. If that has been reached we will need less energy and following we will have less need to adapt!“ (Sepp Kröll, shareholder mountain railroad company Saalbach-Hinterglemm)

When asking the participants what difficulty they feel, could come with implementing the actions of adaptation and mitigation, the author got two significant answers. One participant named the greed of gain as an obvious problem. They stated that money makes the world go round and therefore people will always try to make profit before regarding the environment in anyway.

“(…) es beginnt ja schon bei den Produkten die nach China gebracht werden, dann wieder zurückgeschifft werden oder was auch immer!” (….) Rohstoff wird dort geholt wo er billiger ist, und dann wird alles hin und her gekarrt. Da steckt nur das Geld dahinter!“

„(…) all you have to do is look at the production of goods sector. (...) Raw materials will be bought where it is cheaper, and following the material will be shipped from one place to another. Behind all that lies the term “money”!“ (Anton Hasenauer, Owner Hotel Unterschwarzacher)

Overall all participants thought adaptive strategies are of more significance to the destination than mitigation strategies. Mitigation was perceived to be a method which happens anyway due to regulations by the state and it was perceived that there is no need to be proactive. The problem mentioned by the interviewees was the aspect of money, which was named as an important factor to make these strategies work. However it was also realized that early mitigation can reduce costs for later adaptation.

5.2 Author's Perception

Primarily, the author got the impression that a very superficial knowledge about climate change and possible strategies to reduce or cope with climate change, is given. It seemed like the interviewees' knew that climate change exists and certain areas are affected but continuously stated, that climate change is not noticeable in their destination. One interviewee continuously mentioned that Saalbach-Hinterglemm is way too small to even contribute to a change. The author believes that all participants felt enormously save with the possibilities that come with adaptive strategies and therefore try to enhance them to the fullest. Mitigation on the other hand seemed to be a thing that happens on the side, but was primarily done to save costs within the organization. This cost factor was evident in all interviews and the author perceived that when organizations decided to exchange technologies, machines or the type of fuel used for machines, money dominated this decision.

5.3 Summary

Table 2: Summary Findings

Theme		Response	Example	Number of participants with similar response
Climate change impacts on tourism		Impact	„(...) I believe that costs will increase due to the incremental need of artificial snowmaking. I believe that the development of snowmaking machines will focus on machines, which will be able to produce snow at plus-temperatures. This will create more energy, as well as water costs. I believe it will be enormously expensive.”	2
		No impact	"Not at all, why would we even discuss this as a topic? Climate change is happening to a small extent but there is no need to talk about it"	2
Mitigation				
	<i>Technological</i>	Implemented	“(...) we are paying attention to use high technological vehicles for slope contouring and try to avoid empty drives.”	2
		Not Implemented	„Well buying up to date equipment would be a possibility (...) but a new machine will only be bought, when the old one is broken, and not because it saves energy. In all honesty (...)”	2

	<i>Educational</i>	Implemented	<p><i>"What has been done is for instance the observation of a different skiing area in order to identify possible problems or lacks in that area. We have done that for instance in the south of Tirol. It is information exchange on a really high level. The goal is to achieve certain awareness amongst our staff members, in order to achieve a specific level of sensitivity about the topic. We basically 'audit' each other: This means, one skiing area visits Saalbach-Hinterglemm, looks at the situation and vice versa. We look at the ski area and judge from our perspective what the problems are and what can be improved"</i></p>	1
		Not Implemented	<p>"Well the employee that works here doesn't care. They are not interested (laughs) He might do it two times and will forget it after that, simply because he doesn't want to even realise it. Measures to save energy in the staff section is very hard because staff is quite phlegmatic for such things"</p>	3
Adaptation				
	<i>Technological</i>	Implemented	<p>"(...) we have never been as secure with snow like we are today, that is out of the question, as there are great possibilities with artificial snowmaking. 50 or even 60 years ago we had winters in which there was no snow at all (...) back then nobody even talked about climate change"</p>	4
		Not implemented	-	0

	Managerial	Implemented	<i>“ the Spa-area is an additional product that we are offering and certainly not a USP. This means, if there is a snowstorm or it is raining, we want to provide our guests with the possibility to go to the spa instead of leaving earlier. But skiing remains the number one tourist attraction and we will not be able to replace that”</i>	3
		Not Implemented	“Currently we are not really thinking about something like that. We have a lot of snow right now and till next week we are supposed to get another meter of snow!”	1
Adaptation & Mitigation		Independently	-	
		Complementary	“One will have to try to reduce the emissions, this is our ecological duty. If that has been reached we will need less energy and following we will have less need to adapt”	1

6 Discussion

The results of the research conducted for this dissertation have shown that the level of information provided by academia does not reflect the level of knowledge available amongst the actual practitioners in the tourism industry. In the first part of this paper, climate change and the methods of adaptation and mitigation were exemplified and explored. The most crucial statement made in the literature reviewed, was the necessity to immediately implement adapting as well as mitigating strategies in order to prevent future damage or to cope with irreparable changes which have occurred up to this point.

When analysing the results from the interviews conducted, the author recognized the exceedingly low level of knowledge about climate change amongst the participants. Literature claims that research has developed enormously over the past years and the importance of the phenomenon climate change is being communicated in the business world. However, when the interview partners were questioned about this topic, a high level of disinterest could be detected. Surprisingly this aspect was discovered, even though literature suggests that climate change is most visible in the winter tourism industry, due to its high dependency on favourable weather conditions. Moreover, the level of knowledge amongst the interview partners was highly superficial. Furthermore, some participants stated that climate change would not be noticeable in Saalbach-Hinterglemm and continuously mentioned the increased level of security due to artificial snowmaking technologies. This statement developed to be a central theme throughout the entire research process and the indispensability of technological equipment was the most evident factor discovered in the in-depth study undertaken. This indicates that the most important tool to manage the impacts of climate change in Saalbach-Hinterglemm is the intense usage of technological equipment to ensure profitable business.

Both strategies, adaptation and mitigation, are incorporated into the businesses in the research area, even if the method of mitigation is not always knowingly applied. What the author is referring to is the introduction of new technologies or machines for the benefit of a lower electricity bill, but certainly not for the purpose of mitigating climate change. Only one out of four participants stated that mitigating

strategies have been incorporated into their business, with the help of educational practices amongst the employees. This is definitely one of the most interesting aspects discovered in the in-depth study. All participants implemented mitigating strategies, but were simply not aware of them. Accordingly the question academia shall seek to answer is how to motivate the practitioners to actively and knowingly mitigate climate change. The implementation of adaptation measurements is a much easier process, because it does not imply behaviour change amongst the practitioners but rather for investment in specific areas. However mitigation would call for a rudimentary change of approach towards climate change and ask for a shift in minds amongst participants, which would imply that practitioners perceive it as their personal duty to contribute to a greener environment.

An explanation for this might well be because up to this point, it has been possible to handle climate change with the help of technological equipment and the severe damage was able to be concealed due to these measurements. None of the participants questioned have contemplated the possibility of the worst-case scenario and seem to have focused only on the present, rather than on what will be or could be. All of the interviewees even stated that they have never been as secure as they are now with the technology of artificial snowmaking. This underpins the survey mentioned in the literature review, which resulted that the Austrian skiing industry believes that tourism business will be able to be continued as usual, with the help of technology, for the next 75 years. (Scott, et al., 2008, p. 89) By no means did any of the interview partners mention the impact that such technologies have on the environment. Instead, it was claimed that artificial snow is beneficial for the flora and fauna, because of its favourable composition. Experts have claimed, however, that the implementation of such machines leads to significant consequences for the environment, as well as uses up enormous amounts of energy. (Miehle, Haas, & Lutz, 2008, p. 4)

Yet the downside of adaptation strategies was not regarded by the business owners in the area. Moreover, literature suggests that adaptation strategies which were originally designed to cope with climate change could eventually even significantly contribute to it. (Weaver, 2011, pp. 10-11) Managerial adaptation strategies could only be found to a very small extent in the tourism businesses. The practitioners

mentioned the possibilities of spa and recreation areas, but all stated that this was only the secondary product offered to tourists. Moreover, the author discovered that the main events in the destination are primarily scheduled during the winter season, which shows the low level of threat perceived amongst the participants. Academia, on the other hand, has continuously stressed the importance of introducing alternative recreation activities, in order to provide the tourist with the desired holiday experience. (Agrawala, 2007, p. 53)

The attitude-behaviour-gap, suggested by Stoll-Kleemann (2001), was a very evident aspect observed by the author. A majority of the participants queried, stated that they are well aware of the changes in the climate system and superficially mentioned the consequences for the environment but immediately trivialized this aspect by mentioning the negligence of larger countries regarding this topic. They were not aware or convinced that their contribution to a change could be significant. This confirms Stoll-Kleemann's suggestion that psychological barriers can be identified as justification for not changing behaviours in order to reduce climate change. (Stoll-Kleemann, O'Riordan, & Jaeger, 2001, pp. 112-113)

The evidence in this paper indicates that a severe lack of information provided to practitioners is a very obvious problem. What shall be emphasized is the need to provide participants in the industry with the information required in order for them to know what can be done and what their personal contribution could be. As discovered in the findings one participant stated, that money makes the world go round, so the targeted implementation of a monetary rewarding system for economic friendly business practices could be the intermediary for a unified commitment to environmentally friendly behaviour.

7 Conclusion

In summary, it can be stated that climate change is indeed an issue realized by society; however, the perception of the personal duty of the community itself does not seem to be a realization that has been made just yet. This dissertation has shown the probably most evident problem in motivating efforts to combat climate change: encouraging people to understand that each and every one can make a difference.

Rogner et al. (2007) have suggested that adaptation and mitigation can be complementary, substitutable or independent of each other. (Rogner, et al., 2007, p. 101) This statement must be queried, however, because of the dependency of both strategies. Stern (2007) suggests that a combination of both methods is needed in order to achieve the best possible result and avoid long-term costs. (Stern, 2007, p. 458) Substitutable application will only be possible up to a specific point, due to the interdependency of both strategies, since strong and intense mitigation will always be needed in order to reduce the risk of residual damage to the climate system. Destinations shall seek to implement both strategies simultaneously, in order to cope with the current climate situation and reduce the risks of future damage to the climate system. (Simpson, Gössling, Scott, Hall, & Gladin, 2008, p. 33)

The research undertaken for this Bachelor's Thesis has shown that the strategies of adaptation as well as mitigation have been implemented into the daily processes of the tourist destination. Adaptive measurements, mainly in technological form, however have been implemented much more intensively than mitigating activities. Managerial adaptation methods have only been implemented to a very small extent, through various spa-facilities. However the practitioners in Saalbach-Hinterglemm do not seem to have arrived at the point just yet in which climate change is addressed as an urgent topic and the offer for alternative tourism activities is in need. It was discovered, that it is perceived more like a global problem that will have to be dealt with at some point, but was observed as something very distant. Mitigation strategies are incorporated into tourist businesses, however at times not knowingly and if implemented for economical rather than ecological reasons. What shall be considered is the question of how to actively motivate participants of the

industry and create a shift of mind amongst the responsible people. Moreover, the author believes that there is an increased demand for information, uniquely designed for the tourism industry, on what climate change is and what the industry can do to cope with or even help to reduce it.

Saalbach-Hinterglemm can be described as a very down-to-earth and peaceful place, in which large industries are miles away and the inhabitants seem to be living in their own little world. The participants the author interviewed were not only hoteliers and employees but also crofters and farmers. The author discovered that the majority of the participants see climate change very narrow-minded and the level of knowledge available about the topic is more than superficial. Therefore the level of disinterest towards this topic could be understandable and comprehensible. However it also indicates what needs to be done. The provision of high-quality information to the tourism industry and its practitioners shall be the first step to introduce climate change as a pressing topic in the destination. Subsequently and hopefully this will encourage hoteliers and the practitioners in the mountain railway industry to go greener and take responsibility. Another goal could be an increased focus on education, regarding sustainable development for the future generations of the tourism industry. Extracurricular courses that provide information on how to deliver the desired holiday experience, while ensuring favourable energy consumption could lay the groundwork for environmental friendly and ecologically successful tourism businesses in the future.

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Appendices

Appendix 1

Interview Partners Hotel Industry:

Interviewee 1: Sofia Enn (30 y., Marketing Manager Hotel Kendler)

Interviewee 2: Josef Enn (92 y., Resident)

Interviewee 3: Anton Hasenauer (50 y., Owner Hotel Unterschwarzacher ****s)

Interview Partners Ski lift association:

Interviewee 1: Sepp Kröll (65 y., shareholder mountain railway company Saalbach Hinterglemm)

Appendix 2

Aussicht bzgl. Zukunft des Unternehmens/Destination allgemein

1. Wie denken Sie wird sich Ihre Destination in der Zukunft entwickeln?
2. Wie schätzen Sie die Zukunft Ihres Unternehmens ein
3. Welche Veränderungen konnten Sie in Ihrer Destination/Unternehmen bisher bemerken? Was ist Ihr Fazit?
4. Welche Herausforderungen sehen Sie für Ihr Unternehmen in der Zukunft?
 - a. Wie kann man diesen Herausforderungen begegnen

Wissen/Meinung über Klimawandel

1. Was wissen Sie über globale Erwärmung/Klimawandel
 - a. Was bedeutet globale Erwärmung für Sie in Ihrem Unternehmen/Ihrer Destination
 - b. Gegenwärtig gibt es viele Bemühungen, die Menschen über den Klimawandel aufzuklären. Was meinen Sie, Inwiefern können diese Bemühungen die Menschen dazu bringen, Ihr Verhalten zu ändern?

- c. Wieso bzw. aus welchen Gründen war das Thema Klimawandel in Ihrem Betrieb bisher kein Thema?
2. Klimawandel ist ein sehr präsent Thema, welches sehr kritisch in den Medien diskutiert wird, welchen Stellenwert hat dieses Thema für Sie?

Relevanz des Klimawandels für Unternehmen

1. Welche Rolle spielt der Klimawandel in Ihrer Destination/Ihrem Unternehmen?
2. Welche Rolle spielt die Veränderung der Wetterlage in Ihrem Betrieb/Destination?
3. Welche Folgen erwarten Sie aufgrund des Klimawandels für Ihr Unternehmen/für Ihre Destination?
 - a. Welche Auswirkungen, denken Sie, wird der Klimawandel auf die Nachfrage der Touristen haben
 - b. Welche Auswirkungen wird der Klimawandel auf die Gestaltung des Angebots in Ihrer Destination haben?
 - c. Welche Angebote bietet Ihre Destination/Betrieb für schlechte Wetterbedingungen zur Zeit?
4. Inwiefern fühlen Sie sich von dem Klimawandel bedroht?
 - a. Welche innerbetrieblichen Maßnahmen setzen Sie um den Klimawandel zu stoppen?
 - b. Welche innerbetrieblichen Maßnahmen setzen Sie um, um den Klimawandel zurechtzukommen
5. In welcher Form wird Klimawandel in Ihrem Unternehmen thematisiert?
6. Inwiefern betrachten Sie Klimawandel als Problem/Herausforderung in Ihrem Betrieb?
 - a. Welche Maßnahmen setzen Sie, um die Treibhausgase zu mindern?
 - b. Welche Energiesparmaßnahmen setzen Sie in Ihrem Betrieb um?
 - c. Was bedeutet „energiebewusste Unternehmensführung“ für Sie?
 - d. Welche technologischen Veränderungen wurden in Ihrem Betrieb vorgenommen um klimafreundlicher zu agieren?
 - e. Wie setzen Sie Ihre Strategien konkret um?

- f. Welche technologischen Veränderungen wurden in Ihrem Betrieb vorgenommen um klimafreundlicher zu agieren?
- g. Welche Mitarbeiter-/Gästebildenden Maßnahmen sind in Ihrem Betrieb umgesetzt worden oder geplant?

Strategien und Aktivitäten der „Verminderung“, „Anpassung“ bzw. Kombination beider Strategien

1. Was unternehmen Sie in Ihrem Betrieb um sich den klimatischen Veränderungen anzupassen?
 - a. Falls ein Schneeeisfall in Ihrer Destination eintreten würde, welche Ausweichmöglichkeiten haben Sie für Ihren Betrieb geschaffen bzw. geplant?
2. Was wären Anpassungsmöglichkeiten für Ihren Betrieb? Welche Möglichkeiten sehen Sie für Ihren Betrieb, sich den klimabedingten Veränderungen anzupassen?
3. In wie weit wären diese Strategien umsetzbar?
4. In wie fern stehen finanzielle und wirtschaftliche Fragen bei der Auswahl von Strategien im Vordergrund?
5. Inwiefern erachten Sie die Anpassung als eine sinnvolle Strategie?
6. Welche Möglichkeiten sehen Sie für Ihren Betrieb, Ihren CO₂ Verbrauch zu verringern und so zur Minderung des Ausmaßes des Klimawandels beizutragen?
7. Inwiefern halten Sie Strategien zur Minderung des Ausmaßes des Klimawandels für sinnvoll?
8. Inwiefern sehen Sie die Strategien der Anpassung und Minderung in Verbindung?
9. Inwiefern, sehen Sie den Klimawandel als eine zukünftige Herausforderung?
 - a. Inwiefern unternehmen Sie etwas, um das Ausmaß des Klimawandels zu verringern?

Herausforderungen in Betrieb/Destination für Management von Klimawandel

1. Welche Problematik sehen Sie in der Umsetzung der verschiedenen Strategien?

2. Inwiefern denken Sie ist die Umsetzung der Strategien von den Mitarbeitern bzw. Gästen abhängig
3. Was wird Ihrer Meinung nach nötig sein, um eine Umsetzung von Klimawandel-Strategien zu gewährleisten