"No One Will Voluntarily Take a Step Back"

The Barriers to Voluntary Behavior Change in Air Travel Decision Making

Master's Thesis

Erasmus Mundus European Master in Tourism Management

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Ljubljana, July 31, 2015

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Acknowledgments

The last six months of writing this Master's thesis have been full of ups and downs. In the end, it is a rewarding feeling to have accomplished this challenging task, which would not have been possible without the support and encouragement of some people.

First to mention is my supervisor W. C. Gartner whose feedback was always valuable and constructive. By giving me the feeling that he trusted me in whatever I was heading to, he took a lot of pressure off me. This was highly appreciated.

I would further like to thank all interview participants who made some time to support the accomplishment of this thesis. By sharing and reflecting on their personal opinions, every single one of them became a part of this final project.

Finally, there were my friends and family who constantly expressed their faith in me and my time management. This has eventually paid off!

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List of Abbreviations

ATAG	Air Transport Action Group
BDL	The German Aviation Association
BUND	Friends of the Earth Germany
CO_2	Carbon dioxide
EEA	European Economic Area
EPA	United States Environmental Protection Agency
ETS	European Union Emissions Trading System
EU	European Union
GHG	Greenhouse gas
IATA	International Air Transport Association
IPPC	Intergovernmental Panel on Climate Change
LCC	Low-cost carrier
NABU	Nature and Biodiversity Conservation Union Germany
NASA	National Aeronautics and Space Administration
UNEP	United Nations Environment Programme
UNWTO	United Nations World Tourism Organization
VCO	Voluntary carbon offsetting
VFR	Visiting friends and relatives
WMO	World Meteorological Organization
WWF	World Wildlife Fund

1 Introduction

After outlining the background of this study, the objectives and the wider purpose are presented. Subchapter 1.4 is dedicated to the presentation of the research questions. The last subchapter sets the scope for this study by delimitating it.

1.1 Background

International tourist arrivals are as high as never before. Every year between 2012 and 2014 counted more than one billion worldwide international tourist arrivals. For this year, 2015, the United Nations World Tourism Organization (UNWTO) predicts numbers to be another 3%-4% higher than in 2014 (UNTWO, 2015a). Numbers are even expected to have climbed to 1.8 billion by the year 2030 (UNWTO, 2014). Of all international tourists, more than half arrive by air transport, and the other half is shared by other means of transport, such as road, rail and water transport (Airbus, 2012; UNWTO, 2014). According to the International Air Transport Association (IATA), air passenger numbers are forecast to have increased to about 7.3 billion by the year 2034 (IATA, 2014a). In view of these numbers, it does not come as a surprise that emissions from air traffic have picked up during the last decades (European Commission, 2015a). Forecasts suggest that by 2050, about 15%-40% of global CO_2 will be attributable to the aviation industry (Dubois & Ceron, 2006; Gössling & Peeters, 2007; Higham, Cohen, & Cavaliere, 2014).

Carbon dioxide (CO_2) emissions are heavily contributing to global climate change as they are functioning as a form of cover for the earth's atmosphere which traps heat below the atmosphere and lets temperatures on earth rise (David Suzuki Foundation, 2014a). Climate change does not only let the earth's temperature rise but rather the changing climate has brought along major changes for life on earth. According to the United States Environmental Protection Agency (EPA), droughts, floods, hurricanes, or the spreading of originally tropical viruses, are just examples of how changes in global temperatures are affecting the climate and, thus, life on earth (EPA, 2014).

As climate change has politically been acknowledged as a global issue, global emission mitigation targets have been announced and the goal of 50% emission reductions between the years 2005 to 2050 was set for the tourism industry (IATA, 2014b). In this light, technological progress (Dickinson, Robbins, Viachaslau, Hares, & Miroslaw, 2013), innovative strategies to make aircrafts more fuel efficient (International Energy Agency, 2009), or political interventions, like the inclusion of aviation into the European Union Emissions Trading System (EU ETS) (European Commission, 2015a), have all been attempts at moving the aviation industry onto a more sustainable emission pathway.

However, despite these optimistic goals, researchers believe that these emission reduction targets cannot possibly be reached in view of the aforementioned increases in tourism, and especially air travel demand (Dickinson et al., 2013; Gössling, Hall, Peeters, & Scott, 2010; Higham et al., 2014) while acknowledging the expected low effects of technological advances (Kroesen, 2013). This is also especially deemed true in the light of the current absence of a global market mechanism to regulate emissions from aviation (Cohen, Higham, & Reis, 2013), the wide-ranging absence of a levy on aircraft fuels or further tax exemptions for the aviation industry, and hence, additional subsidies for airlines (Green Budget Germany, 2014). Increased competition, decreasing prices and the overall growth of the low-cost carriers (LCC) are contributing to these concerns (Nilsson, 2009). As mobility, including air travel, has been found to be greatly motivated by price (Donaghy, Rudinger, & Poppelreuter, 2004), air travel demand is said to be induced by competitive prices as compared to alternative means of transport (Nilsson, 2009).

The bottom line is that sustainable developments on the part of the supply side in conjunctions with political policy setting are not expected to solely succeed in leading the aviation industry on a more sustainable emission pathway towards reaching the set emission reduction targets. Hence, it has been argued that the demand side needs to play its part in helping to reduce emissions in the future in order to stop outweighing the technological and political progress (Hoffmann, 2011; Miller, Rathouse, Scarles, Holmes, & Tribe, 2010).

The way in which the demand side, the consumer, can play its part has been described by Miller et al. (2010) as voluntary behavior change where the consumer is encouraged to voluntarily change his or her air travel behavior. Research on the ways voluntary behavior change could be achieved has found numerous barriers to voluntary behavior change which are mainly based in either the detected gap between home and away behavior or the gap between attitudes and behavior (Cohen et al., 2013).

It is the latter gap that this study is focused on and which will be the basis for the exploration of barriers to voluntary behavior change.

1.2 Objectives and Purpose

The basis for this study is formed by previous research that has congruently detected a gap between people's environmentally sustainable attitudes and their travel behavior, which was in many cases not environmentally friendly, but rather environmentally destructive (e.g. Barr, Shaw, & Coles, 2011; Barr, Shaw, Coles, & Prillwith, 2010; Becken, 2007; Dickinson et al., 2013; Gössling, Scott, Hall, Ceron, & Dubois, 2012; Hares, Dickinson, & Wilkes, 2010; Higham et al., 2014; Juvan & Dolnicar, 2014).

Hence, the overall objective of this study is to gain a better understanding of the scientifically established gap between attitude and behavior in regards to making environmentally sustainable travel decisions.

More specifically, the study's primary aim is to explore and analyze the reasons for the attitude – behavior gap in form of a case study research of environmentally conscious and actively involved people. It was assumed that these people would generally have pro-environmental attitudes as well as the slightest gap between attitudes and behavior in regards to their travel decisions, and especially their air travel decisions.

The explored causes for the attitude – behavior gap can be determined as the barriers to voluntary behavior change. Insights into these barriers will add to the comprehension of the complexities of encompassing voluntary behavior change towards more environmentally sustainable travel decision making.

As study participants are generally assumed to care about the environment and to be willing to fight its destruction despite a possible attitude – behavior gap in regards to air travel behavior, the secondary objective of this study is to elicit ideas on how to tackle the issues underlying unrestricted air travel growth.

By gaining understanding of the causes for the barriers to voluntary behavior change and the issues related to unrestricted air travel growth and ideas for possible interventions, a basis for future research will be built.

Hence, the **primary objective** is:

> *To explore and analyze the barriers to voluntary behavior change as resulting from the attitude – behavior gap between pro-environmental attitudes and environmentally destructive travel decision making behavior.*

And the **secondary objective** is:

> *To elicit the issues, that underlie discretionary air travel behavior and to elicit ideas to tackle these issues from the perspective of the consumer.*

1.3 Research Questions

Based on the objectives of this study, the following two main research questions, with a number of sub-questions, have been developed and will be guiding this study.

1. What are barriers to voluntary behavior change towards more sustainable travel decision making in regards to air travel decisions?
   a. What are the main criteria for the decision to fly?

b. How are inconsistencies between pro-environmental attitudes and travel decision making behavior reasoned, and how can these reasons be explained?
c. How is the willingness to reduce the gap between pro-environmental attitudes and behavior described?

2. What are, from the perspective of the consumer, current issues of, and future possibilities for moving the air traffic sector on a more sustainable emission pathway?
   a. What are issues that are inhibiting emission reduction approaches?
   b. Where do possible starting points for future interventions lie?

1.4 Delimitations

In order to set the scope for this study, and to be able to better classify the development of the study and its results, it is important to delimitate it.

Even though the main objective of this study is to generally understand the barriers to voluntary behavior change in form of a case study conduction with environmental activists, it has to be noted that due to the location of the author the study focuses on environmental activists from Germany.

Hence, it is important to understand that the study has a general focus on Germany in terms of the provided background of the study. This means that developments on the demand side, the supply side and on the political level have been included in this study in regards to their relevance for the German tourism and air travel market. Furthermore, the opinions articulated by the study participants have to be understood in view of the fact that they were all German citizens and that they hence elaborated more on issues concerning the German tourism and air travel industry instead of referring to global developments.

It is as well important to mention that this study is limited in its focus on the decision to travel by air. Hence, sustainable or destructive behaviors within the destination are outside the scope of this study. This scope was set deliberately in this manner in order to create a closer focus on the main research objective of gaining better understanding of the attitude – behavior gap in terms of making environmentally sustainable travel decisions.

2 Literature Review

In regards to building a basis for the present study, the following subchapter will first present the current state of global climate change and the contribution of the tourism and the aviation industry to these developments. This is followed by insights into current developments in regards to air travel on all three levels – the supply side, the political level, and the demand side. Besides outlining developments that have been stimulating air travel demand, mechanisms that are in force to move tourism and especially the aviation industry towards more sustainable future development, are respectively presented for each level. Finally, the chapter will conclude with shedding light on previous findings on the gap between attitude and behavior, alternative approaches to understanding travel behavior, and theoretical approaches that have been considered for serving as a basis for the data analysis of this study.

2.1 Climate Change as a Global Phenomenon

After outlining the global effects of a changing climate, the chapter will move on to explaining the contribution of tourism, and air traffic in specific, to global climate change.

2.1.1 The Global Effects of a Changing Climate

The average surface temperature of the earth has risen by about 0.8 degrees Celsius within the last century and is forecast to rise at least another 0.1 degree Celsius every decade (Lynch, 2011). According to the EPA (2014), these changes in average temperature have shifted climate and weather patterns in a possibly dangerous way as it can already be observed today.

Different gases within the earth's atmosphere ensure that the heat created by the sun is kept to a certain extent beneath this layer, and some of the radiation from the sun is reflected back into space. This enables human beings to exist. Among the gases that keep the earth's atmosphere balanced is CO_2, which is important to ensure the protection from extensive solar radiation. CO_2 is exhausted into the atmosphere by breathing plants, humans, oceans and to a great extent by burning fossil fuels (David Suzuki Foundation, 2014a).

In the past decades of extensive fossil fuel burning (coal, gas, and oil) for the production of energy, the amount of CO_2 in the earth's atmosphere has risen by 42% as compared to the time before the industrial revolution. As a dramatic result, the vast amount of CO_2 in the earth's atmosphere now functions as a sort of blanket that traps the heat beneath the atmosphere, resulting in a rise in temperatures (David Suzuki Foundation, 2014a).

Evidence of a changing climate and changing weather patterns has been observed and felt in a number of different ways. Places around the world have experienced periods with fewer- or more rainfall or uncommonly hot summers, or very cold winters with temperatures

way below freezing. These changes have had major social, environmental and economic impacts (EPA, 2014). More and more severe natural disasters have come along with these changes in climate and weather patterns. Cyclones, blizzards, hurricanes, floods, droughts or mud slides, are just a series of examples for severe weather conditions that are observed more frequently and with increasingly stark impacts (EPA, 2014).

Besides these severe weather conditions there are a range of major impacts of a warming climate on the earth's physical system, where most impacts interplay. According to the National Aeronautics and Space Administration (NASA), global sea levels have risen by about 0.17 meters within the last century and a rise of double the rate of the last century has been observed over the last decade (NASA, 2015). This can, besides other factors, be traced back to the increased greenhouse effect which heats the oceans and lets the warmer water expand. The warming climate lets the ice caps and ice sheets melt which also contributes to the sea level rise (Cubasch et al., 2013). As a result, ice caps and sheets around the world are shrinking; and especially the thickness of Arctic sea ice has seen great melting within the last decades (NASA, 2015).

The oceans are absorbing the CO_2, which is increasingly emitted by human activity and which is then increasingly being trapped within the atmosphere. The result is ocean acidification, which not only has environmental implications, like fewer fish, but it also has social and economic impacts, like the decrease in fish supply, for instance (Cubasch et al., 2013).

Climate change is affecting tourism destinations

As apparent from the examples, a changing climate affects different aspects of our lives. Warming temperatures and the interlinked effects of it will continue to impact on the natural environment, people's health and safety, on transportation systems and innumerable other aspects of our lives (EPA, 2014). As a destination's image, the perceived safety, the natural resources, the climate and the travel costs are important factors in travel decision making and all these factors are expected to be severely impacted by a changing climate, travelers might choose to not travel to a destination (Gössling et al., 2010). For example, the destination's weather conditions and climate, the destination's risks for natural disasters, like tornados, flooding or droughts, or the local situation of health issues, like infectious diseases from mosquitos, which spread viruses to ever more places, will all impact travelers' perceived image of the destination. Hence, as tourism is depended on the climate, shifts in climate and the corresponding negative effects are expected to have great impacts on tourism destinations and tourism businesses (Gössling et al., 2010).

Towards an uncertain future

Evidence shows that some changes that have come about by the changing climate are irreversible, as presented by the United Nations Environment Programme (UNEP) (UNEP,

2015). For example, CO_2 normally remains in the atmosphere for about a century. This means that the earth's temperatures will further increase in the decades to come (EPA, 2014). Besides all evidence for a changing climate, there is no consensus about the actual impacts and the impacts the changes in climate will bring about in the future. With impacts left uncertain but evidence already showing disastrous results of a changing climate it is acknowledged that today's climate can no longer be used as a basis for what is to be expected in the future (EPA, 2014).

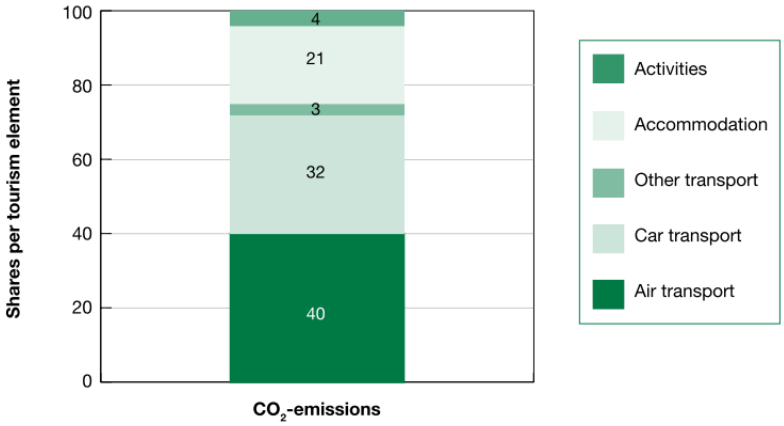
2.1.2 The Contribution of Tourism and Air Traffic to Global Emissions

According to a combined report from the UNWTO, the UNEP, and the World Meteorological Organization (WMO), the tourism industry as a whole contributes about 5% to global CO_2 emissions (UNWTO, UNEP, & WMO, 2008). In terms of radiative forcing, the measure to determine the warming that is caused by all greenhouse gas (GHG) emissions, it is estimated that the tourism industry contributes even more, namely 4.4%-9% of all warming resulting from GHGs with the inclusion of cirrus clouds that are induced by aviation (UNWTO et al, 2008). Releasing burned fuel in higher altitudes, as especially long-haul flights do, stimulates a number of chemical reactions and other atmospheric effects which have an even greater impact on global warming than CO_2 emissions that are emitted by planes flying at lower altitudes (David Suzuki Foundation, 2014b).

If the tourism industry was to be regarded as a country in terms of its GHG emissions, it would be the fifth greatest contributor to GHG emissions behind the nations of China, USA, India and Russia (Pang, McKercher, & Prideaux, 2013). Out of all CO_2 emissions caused by the tourism industry, about 93% are allocated to accommodation; car travel and air travel together (UNWTO et al., 2008). According to the Air Transport Action Group (ATAG), sole emissions from air traffic account for about 2% of world-wide and man-made CO_2 emissions (ATAG, 2014). In 2050, aviation's contribution to global emissions is expected to have reached between 4% to 9% of all *man-induced* emissions (Rosenthal, 2010). This further increase in total emissions caused by aviation is not surprising regarding that in Germany between the years 1990 and 2010 the CO_2 emissions from air passenger traffic have increased by 91% (Friends of the Earth Germany [BUND], 2012).

Aviation is also a major consumer of oil with a consumption of 243 million tons of fuel per year which accounts for 6.3% of global refinery production (Becken, 2011) and as such lets aviation contribute to about 40% (see **Error! Reference source not found.**) of all tourism related CO_2 emissions (Dickinson et al., 2013; Gössling et al., 2010; UNWTO et al., 2008). When looking at the latter number in terms of radiative forcing, Gössling et al. (2010) suggest that air travel's GHG emissions contribute to 75% of the tourism transport sector's radiative forcing.

Table 2.1 CO_2 Emissions from tourism transport sub-sectors



(UNWTO, UNEP, & WMO, 2008, p. 34)

The distinction between tourism, business travel or travel with the purpose of visiting friends and relatives (VFR) would not change the position of air travel as the greatest proportional transportation contributor to CO_2 emissions (Cohen et al., 2013).

Regardless of emission mitigation targets, the aviation industry is expected to emit between 15%-40% of all global CO_2 emissions by the year 2050 (Dubois & Ceron, 2006; Gössling & Peeters, 2007; Higham et al., 2014). This is an effect of growing air passenger numbers with an annual growth rate of about 5% and an increase in air travel supply (Dickinson et al., 2013). By 2020, forecasts suggest that even though fuel efficiency may increase by 2% a year, world-wide emissions from international air travel will have increased by 70% as compared to numbers from 2005 (European Commission, 2015a).

2.2 The Supply Side: Airline Industry Developments

This chapter will first look at the low-cost air travel market as an example for industry developments that have been stimulating air travel demand across the globe. A special focus is set on the market developments within Europe, and Germany in particular. Chapter 2.2.2 elaborates on industry developments that have attempted to move the airline industry towards a more sustainable emission pathway.

2.2.1 Low-Cost Carriers as Emission Drivers

> The demand for air travel is a function of the generalized cost of travel, that is, fare and time spent on utilizing the services. A carrier will attract passengers if it can offer a noticeable reduction in the elapsed time. This consists of (a) airport access time, (b) flight time, (c) waiting time and (d) boarding time (Chin, 2002, p. 55).

This quotation by Chin (2002) summarizes most of the benefits that LCCs can offer passengers today. Demand is stimulated by the sector through attracting customers on the ba-

sis of providing an efficient air travel experience to low prices. The following paragraphs shed light on the rise of LCCs, their business models, their potential in attracting customers, and it is discussed in how far demand is induced by developments in the low-cost sector.

The beginnings of LCCs

In 1967 Air Southwest (today Southwest Airlines) was introduced and four years later renamed into Southwest Airlines. It was the first airline that invented an, at that time, innovative approach to flying – hip branding, quite different and less stiff flight attendants, and all that for very low fares (Thomas, 2013). Southwest Airline's slogan 'long legs, short nights' stimulated a controversial debate at that time; however, many Americans welcomed the airline's prices and services. Unknowingly, the concept of no-frills and low costs was born (Thomas, 2013, para. 7).

After a number of liberalization stages between 1988 and 1997, the European aviation market opened up. Starting in 1997, all airlines from the European Union (EU) were allowed to fly to and from almost every airport within the EU (Graham & Shaw, 2008). The liberalization of the market had paved the way for the growth of LCCs (Francis, Humphreys, Ison, & Aicken, 2006) – and Southwest Airlines was just the beginning.

In 1990, Ryanair, one of the most popular European LCCs, was introduced – based on the business model of Southwest Airlines. The airline was launched in 1985, then making losses, and finally changed its business model to no-frills and low fares. In 2013, Ryanair offered air travelers flights on 1.600 routes throughout Europe and Northern Africa and now transports more than 80 million air passengers a year (Ryanair, 2015).

The Ryanair business model was copied by numerous LCCs all across the globe. In Europe, the annual revenue of LCCs has been growing on average of 21% in the last decade (Thomas, 2013). Estimates suggest that in 2005 about 50 LCCs were in service within the European borders (Graham & Shaw, 2008). These LCCs have on average about 60% lower costs per unit as compared to network carriers. This is achieved through, for example, improvements in effectiveness and efficiency in regards to operation, for example through the use of secondary airports, and promotion and selling (Graham & Shaw, 2008).

The main features that originally classified airlines into the LCC sector were low fares, direct internet sale, add-on purchasable services, like luggage, food or on-site check-in, or quick and timely boarding, departure and landing (German Aerospace Center, 2014). Cabins are usually well used and efficiently outlaid in order to archive lower per unit costs and to increase revenue by transporting more people at once (Flottau, 2015).

Tuning the LCC business model to increase efficiency and profits

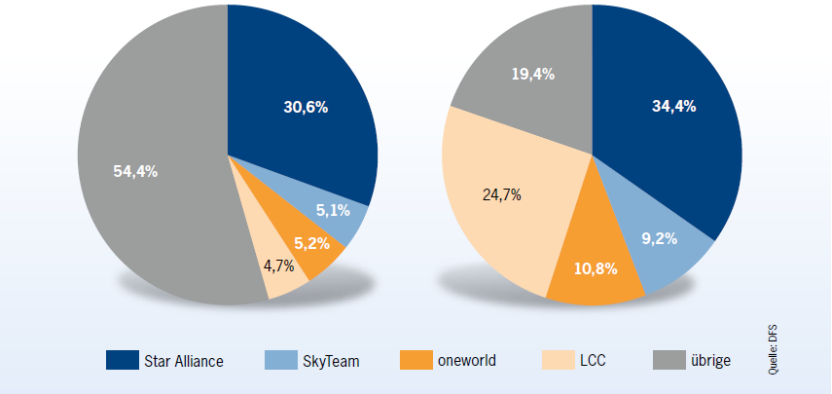
LCCs around the globe, including carriers that are operating huge amounts of their flights to and from German airports like Ryanair, EasyJet or Germanwings, have been tuning their business models with an emphasis on improving customer service while keeping prices low (Sabre Airline Solutions, 2010). Seat allocation, faster boarding procedures, more and better choices of food or more flexible fares depending on the features, are just examples of the developments in the LCC sector that strive to attract a wider range of travelers (Thomas, 2013). This changing business model has been termed a "hybrid business model" (p. 2) that lets LCCs still operate to fairly cheap prices but with an increased choice and quality of services (Sabre Airline Solutions, 2010).

The LCC Sector in Germany

German airports are well massively served by LCCs. In 2014, 466 different were served by LCCs starting and/or landing on German airports. In comparison to the previous year, an increase of 10.2% was recorded in terms of LCC routes. Between 2003 and 2007 about 100 new routes were launched every year from and to German airports (German Aerospace Center, 2014).

In 2014, LCCs operated about 4.000 flights in and out of German airports, about 500 more flights than in 2013. Passenger numbers have also increased, despite the slightly lower growth rate of routes – indicating an increase in passenger volumes by operating more flights on fewer routes (German Aerospace Center, 2014).

In total about 32.3% of all passengers that were flown in and out of German airports in 2013, were transported by LCCs. Almost half (45%) of all domestic air passengers within Germany travelled on LCCs in 2013 - meaning travelling for low fares, with lower levels of service and from mostly secondary airports (German Aerospace Center, 2014).



(German Air Navigation Services, 2012, p. 16)

Figure 2.1 Alliances and LCCs 2001 and 2012.

The above Figure 2.1 shows the development of the low-cost airlines' share in comparison to airline alliances across Germany. In comparison to numbers from 2001, the low-cost sector has taken up another 20% of the cake, so becoming an ever more important part of the German airline industry (German Air Navigation Services, 2012).

LCCs are inducing demand by creating new possibilities for consumers

A study by the Civil Aviation Authority (2006) found that the growth of LCCs has actually not, as initially promoted, enabled a greater range of people to fly but it has rather stimulated demand among middle- to higher income classes. These people were found to fly more often and especially more often on shorter distances which were originally covered by other means of transport (Civil Aviation Authority, 2006). Graham and Shaw (2008) argue that the expansion of LCCs and routes has stimulated 'new' motivations to travel – for example, short weekend getaways to foreign countries, second home tourism, or retired people who suddenly decide to spend the cold season somewhere else than their home. Visiting friends and relatives has become easier, cheaper, faster and as such also more desirable for people (Graham & Shaw, 2008).

Donaghy et al. (2004) found that the increasing mobility is to some extent a behavioral factor that is triggered by greater social networks and consumer behaviors. Overall mobility is heavily stimulated by price, which in turn stimulates the demand for air travel (Donaghy et al., 2004). Urry (2002) speaks of mobility as something that comes from inside; where we as people even in a century of technological developments strive for "co-presence" (p. 256), meaning that we keep looking for the value of actually *being* with people instead of just communicating with them in an indirect, online way. Graham and Shaw (2008) argue that the development and growth of the LCC sector is enabling more people to comply more frequently with this 'social need' due to the low prices of air travel.

In this light, Nilsson (2009) outlined that in 2009 about 60% of all low-cost airline occupancy may be demand that was induced. That means that more than half of all air travel is happening primarily just because of the existence of LCCs that offer flights to fairly cheap fares (Nilsson, 2009). This, as he suggests, is stimulating excessive air travel as people make the specific choice to fly due to the presence of air ticket bargains (Nilsson, 2009).

Contradictions are obvious. The facts are that air traffic is vital for economic development of tourism destinations but that at the same time air traffic is causing the production of huge amounts of CO_2. These are partly penalized by the introduction of policies and emission reduction strategies but at the same time air travel development is promoted in form of, for example, providing LCCs with tax exemptions by reasoning that they are stimulating economic development (Graham & Shaw, 2008). It will be tough to reconcile goals of carbon reductions, and at the same time goals of expanding air traffic networks to allow peo-

ple to travel and to stimulate economic development. This is especially difficult in the light of private ownership of airlines and airports and the aim of increasing revenues as this is at the same time stimulating growth in demand and, especially with the LCC sector, averting demand from alternative modes of transport to air travel (Graham & Shaw, 2008). In Europe, where distances between countries are easily manageable by more environmentally friendly means of transport, the often significantly lower fares for travel on LCCs as compared to train travel, for example, are shifting demand to air travel (Graham & Shaw, 2008).

Graham and Shaw (2008) go that far as to claim that the low-cost "airlines are selling mobility" (p. 1449) and accessibility at the same time. In other words, consumer behavior is induced and destinations are made more accessible through the provision of ever more points of air travel access and through providing air travel to competitive fares. Plus, as airlines do usually not directly pay for their emissions, so the external costs that occur, it is argued that behavioral changes are deliberately induced by the LCC sector (Graham & Shaw, 2008).

In the EU, growth, including economic growth in the airline industry, is, and has been in the past, promoted and supported through liberalizations, deregulations, tax incentives and growing competition (Burns & Bibbings, 2009). However, at the same time policies and strategies are introduced to fight the increasing volume of emissions – contradictions that are important to be addressed if the tourism industry aims to become more sustainable (Burns & Bibbings, 2009).

2.2.2 The Industry Perspective: Emission Reductions through Progression

Within the last decades efforts have been made by the airline industry, which have to some extent been stimulated by governmental interventions, to reduce GHG emissions per passenger kilometer (Dickinson et al., 2013). The total energy efficiency of air transport could be enhanced by 29.8% between 1990 and 2009. According to the European Environment Agency (2011), this is, in comparison to other means of transport, like car travel (16.4%) or rail transport (5.2%), a significant development.

Efficiency increases in fuel consumption of 70% have been achieved for aircrafts since the 1950s to date (International Energy Agency, 2009). The major proportion of these fuel efficiency gains have come about through technology advances of the engines and airframes of the aircrafts (Lawrence, 2009).

Technological improvements are visible throughout the airline industry with, for example, the launch of the Boing 787 Dreamliner which was built with lighter materials bringing about a 20% higher fuel efficiency as compared to existing aircrafts (Dickinson et al., 2013).

Pros and cons of the new bio fuels for aircrafts

Another positive development is the introduction of different types of bio fuels which have been tested since the first test flight in 2008. Since then, aircrafts have gone on a number of test flights using a mixture of regular fuel (kerosene) and differing kinds of bio fuels with different compositions and sources (Dickinson et al., 2013). As the Committee on Climate Change published in 2009, the further introduction of bio fuels can potentially reduce aircraft's carbon exhaustions by about 35%, leading to a reduction in GHG emissions from aircrafts (Committee on Climate Change, 2009).

However, the future success of bio fuels seems, despite advancements like the current use of a mixture of 50% bio fuel and 50% kerosene in some aircrafts, still uncertain as bio fuels are still being tested and only produced in small amounts leaving the question of when and how significant improvements can be registered (Dickinson et al., 2013). Constraints are, for instance, the significantly higher price of bio fuel production, the availability of bio fuel sources or the, so far, unsustainable or sometimes inefficient cultivation of effective crops in terms of, for example, sustainable land use for cultivation or in terms of great production costs (Committee on Climate Change, 2009).

Limits of emission reductions through technological developments

When regarding current emission reduction goals for the decrease of emissions caused by tourism, it is suggested that these goals of 50% emission reduction from the year 2005 to the year 2050 are also despite the goal of 1.5% fuel efficiency gains between 2009 and 2020 difficult to achieve (IATA, 2014b). In the light of continuous growth in demand for tourism, these goals are rather optimistic (Gössling et al., 2010). Controversial to these emission reduction goals is, that not even scientists are expecting the industry to achieve a more than 2% reduction in emissions over the next 15 years (UNWTO et al., 2008).

There is no limit to date to tourism growth and most of the hope for a sustainable future with a decrease in carbon emissions is put on the industry (Gössling et al., 2010). Hall (2010) puts these developments in even more drastic words: he argues that most of the tourism stakeholders ironically believe that the appetite for increased mobility of a growing number of travelers can be satisfied while at the same time reducing GHGs from tourism. However, researchers expect that demand for air travel will contribute to an increase in emissions at a faster pace than they can be mitigated by technological advancements (Dickinson et al., 2013).

In the sense of believing that technological progress can balance the increase in tourism demand, the notion of "green growth" (p. 104) has been circulating in the tourism industry among, especially, practitioners (UNEP & UNWTO, 2012). Overall, the major constraints to this notion are those of efficiency limits, market limits, technological limits and the lack

of appropriate research into the assessment of the counter effects of so-called 'sustainable growth'. Research would be necessary into the impacts of reducing the use of one resource while increasing or overusing another resource in order to strive for 'green development' (Hall, 2009).

Creating optimistic beliefs

The notion of "green growth" (UNEP & UNWTO, 2012, p. 104) and the promotion of positive developments of the tourism, and specifically the aviation industry which are moving towards sustainable growth are, as Gössling et al. (2010) found, creating the public impression that the industry is very close to finding 'the solutions' to a more sustainable future, despite unrestricted tourism growth. Gössling et al. (2010) state in this regard that, "[…] the technology needed to bring about absolute emission reductions is always in the near future - though never at hand" (p. 124).

2.3 The Political Level: Policy Developments

The airline industry has been recognized as the transportation sector with the lowest global level of regulations as compared to other transport sectors (Lassen, 2010). International emissions from aviation were not initially included in the Kyoto Protocol, which outlines global GHG emission reductions. Additionally, aviation has as well widely been exempted from fuel taxation, with only individual countries slowly adopting domestic fuel taxes (Lassen, 2010). Overall, the aviation industry is lacking a global market-based instrument to regulate emissions which has widely stimulated the discretionary growth of the industry (Cohen et al., 2013). Hence, in the following two subchapters it will first be elaborated on how politics are supporting the airline industry's growth in Germany before the second subchapter 2.3.2 will shed light on two politically instigated initiatives that aim at reducing carbon emissions from air travel.

2.3.1 Political Support for Air Traffic Growth through Subsidization

Air traffic in Germany is massively subsidized. In all of Europe, the aircraft fuel, kerosene, is exempted from the mineral oil tax (in Germany: energy tax). International flights are, besides that, exempted from the value added tax (Green Budget Germany, 2014). The value added tax is added, however, to all domestic flights, as recognized by the German Federal Environmental Agency (2014).

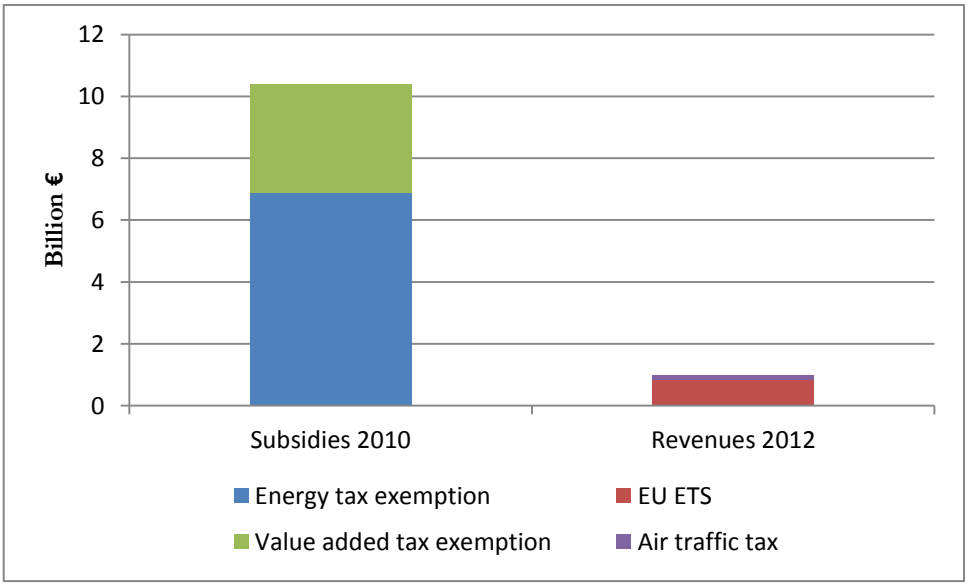
According to the Nature and Biodiversity Conservation Union Germany (NABU), air traffic is, due to the exemption from the energy tax, benefitting from a monetary advantage over alternative transport competitors of about 3 Euros per 100 passenger kilometers. This would equal to a saving of about 20 Euros for a domestic flight from Düsseldorf to Berlin regardless of other payable taxes (NABU, n.d.).

The exemption from the value added tax for international flights operating out of German airports is benefitting the aviation sector in a way that they have competitive advantages over alternative, more sustainable, transport modes. Alone the exemption from the value added tax is calculated as subsidies amounting to about 3.49 billion Euros (Federal Environmental Agency, 2014).

Regarding all tax exemptions of the aviation industry it is estimated that the industry is gaining every year about 10.4 billion Euros in form of subsidies. In addition to that, public funds are utilized for infrastructure developments on especially regional airports (Green Budget Germany, 2014).

Table 2.2 illustrates the amount of subsidies (10.4 billion Euros) that are pumped into the German aviation industry in form of tax exemptions from the energy tax and the value added tax (left hand side). On the right hand side of the figure the comparable small revenues that the state is making by the imposition of the air traffic tax (see Chapter 2.3.2.2) and the integration of air traffic into the EU ETS (see Chapter 2.3.2.1). The state income of these two measures to be used for emission reduction processes equals to about one billion Euros, which is not even a tenth of the subsidies the German aviation sector is receiving (Green Budget Germany, 2014).

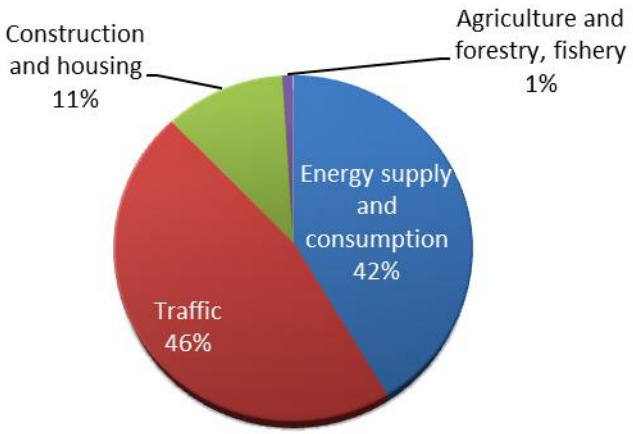
Table 2.2 High subsidies, low revenues



(adapted from Green Budget Germany, 2014, para. 4)

The German traffic sector as a whole is on top of the statistics of received subsidies that are determined as environmentally harmful. The entire traffic sector accounted for 24.2 billion Euros of environmentally harmful subsidies. As mentioned before, 10.4 billion Euros account for the aviation industry which is hence the dominating receiving sector of subsidies in the German traffic sector (Federal Environmental Agency, 2014).

Figure 2.2 illustrates this by comparing the traffic sector's subsidies with environmentally harmful subsidies of three other transport subsectors, namely the energy supply and consumption-, constructions and housing, and the agriculture, forestry, and fishery sector.



(adapted from Federal Environmental Agency, 2014, p. 61)

Figure 2.2 Subsidy volume by sector.

According to an opinion research center which conducted a survey in 2014 on the public opinion of the exemption of air traffic from the energy tax, almost 80% of the respondents did actually not support the exemption and about 70% claimed that the German government should actively support the subsidy reduction of the aviation industry (Green Budget Germany, 2014).

The German Federal Environmental Agency (2014) states that environmentally harmful subsidies distort competition in a way that more environmentally sustainable technologies and products are competition-wise discriminated. The consequence is that the government has to exceedingly support these more sustainable technologies and products so they can stay competitive and have a chance to prevail against less sustainable competitors (Federal Environmental Agency, 2014).

2.3.2 The Political Perspective: Emission Reduction Approaches

In the following two subchapters, two approaches to emission reduction that have been enforced through political interventions are presented. After giving insight into the implications of the integration of air traffic into the EU ETS, subchapter 2.3.2.2 will elaborate on the consequences of the imposition of the air traffic tax in Germany for the airline industry and the consumer.

2.3.2.1 The Integration of Air Traffic into the EU Emissions Trading System

In 2005, the EU ETS was introduced. The system's aim is to get emitting industries to produce more environmentally friendly so they positively contribute to the set emission reduc-

tion goals for climate change mitigation. Initially included in the system were thousands of power stations and other GHG emitters, which accounted for about 40% of all EU emissions (Dickinson et al., 2013) and which spread across 31 countries. For every ton of emitted GHG, producers have to pay a fixed amount in order to obtain certificates for their emissions. The German Aviation Association (BDL), which is supporting the competitiveness of the German aviation sector, states that by putting a price on every ton of GHG emissions and by only providing the industry with a fixed amount of allowances, GHG emitters are either forced to produce more environmentally friendly or to accept a higher production price for not reducing emissions which will eventually result in a competitive disadvantage in terms of costs (BDL, 2015).

In 2012, air traffic was included in the EU ETS. The reason for including air traffic in the EU ETS was that experts and industry stakeholders decided that as opposed to other measures, for example a direct fuel tax, the inclusion of aviation into the EU ETS would bring greater environmental benefits with a quite low cost to the society (European Commission, 2015a).

Included are all flights that start from an airport in the European Economic Area (EEA), which includes besides all EU member states (28) also Norway, Iceland and Liechtenstein. All flights to and within the EEA are also included in the EU ETS. However, due to continued disagreements within the industry and hence continued negotiations, it was decided that between 2013 and 2016 only flights starting and landing at an airport within the EEA have to comply with the EU ETS (European Commission, 2015a).

The EU ETS is the first international system that regulates the amount of GHG emissions through putting a limit on the maximum amount of emissions. The principle of the system is called a "cap and trade" (European Commission, 2015b, para. 2) principle whereby the initial maximum amount of GHG emissions was based on numbers from 2005 (Wallonie, 2014). For the aviation industry in specific, the first limit of allowances was based on emission data from the years between 2004 and 2006 (Bartels, 2012). 85% of all allowances were distributed for free to the airlines with the intention to not cover all their emissions, and 15% are determined for new airlines and for auction (Dickinson et al., 2013). In different steps, the amount of emission allowances is reduced with the aim of reducing the amount of emitted GHG emissions. In the consecutive years, allowances were calculated based on a percentage of the year 2011. For example, in 2013 only 95% of the allowances from the initially set benchmark were given out (Hale & Carrington, 2012). In 2020 the emissions emitted by the industries included in the EU ETS are aimed to be 21% lower than in the initial stages of the system's introduction in 2005 (Wallonie, 2014).

Emission allowances can be traded within the system, where heavy emitters can buy more allowances from other sectors or purchase some of the 15% of allowances by auction.

More environmental friendly airlines can sell the extra permissions or they can keep them to cover future emissions (European Commission, 2015a). By limiting the amount of allowances, each allowance is given a value. Hence, each emitted ton of GHG comes as a cost to the emitter and vice versa – each ton that is saved has a value for the business (European Commission, 2015b).

The ultimate aim is to reduce emissions and hence to mitigate climate change and global warming. The aviation industry would ideally switch to more sustainable fuels, for example biofuels, which are, however, also not without its controversies as explained in Chapter 2.2.2, and to improved technology to emit less GHG emissions. Not reducing emissions will come as a cost to the aviation industry. Controversially, however, the airline industry is not expected to make great losses – if anything, airlines will continue to make profits due to the unlimited growth in air traffic demand. Furthermore, airlines are passing some of the costs on to the consumer which has been resulting in slightly higher ticket prices (Bartels, 2012). However, this hasn't had a significant effect on consumer demand as especially for long-haul flights, demand has been found to be particularly price inelastic as opposed to short-haul travel where alternative transport modes would increasingly compete with air travel if airfares just rose a bit (Gössling et al., 2012; Tol, 2007).

Critics of the inclusion of air traffic into the EU ETS argue that the system doesn't significantly hurt airlines in a fiscal manner, for them to seriously try to reduce emissions (Hale & Carrington, 2012) – especially in the light of the ease of passing most of the costs on to the consumer (Bartels, 2012). Hale and Carrington (2012) call for a serious reduction of tradable permissions for the system to have a significant effect on climate change mitigation.

2.3.2.2 The Implications from the Air Traffic Tax in Germany

In 2010, an air traffic tax, which was also promoted as an environmental levy, was decided as part of the so called austerity package Germany. It was finally introduced in the beginning of 2011 (BUND, n.d.). This air traffic tax is valid for all flights that take off from a German airport, including national as well as international air carriers (ZEIT ONLINE, 2014). Depending on the distance that is covered by the flight a higher or lower amount is to be payable. There are three categories of the air traffic tax which were developed depending on the distance between Frankfurt International Airport, which is the biggest German hub, and the biggest airport in the respective destination country (Green Budget Germany, 2014). Hence, the amounts are arranged for short-haul (<2500km), medium-haul (2500-6000km) and long-haul (<6000km) in a way that the lowest amount of 7.50€ is imposed on all short-haul flights; 23.43€ on medium-haul flights and the highest amount of 42.18€ on long-haul flights (Green Budget Germany, 2014). As these costs are arranged based on the distance covered by the flight, the tax is adjusted to the CO_2 emissions caused by the respective short- to long-haul flights (BUND, n.d.). Airlines are free to decide

whether they want to pass the costs of the tax on to the consumer in form of a ticket tax added to the airfare or whether they want to bear the costs themselves (BDL, 2014).

Exempted from the tax are private- and cargo flights and flights between some North Sea Islands where there is no access by train. Further exempted from the tax are all flights that land at a German airport for a stop-over (manager magazin, 2014).

The German airline industry has been calling for an elimination of the air traffic tax with the argument that it is a heavy financial burden for airlines as well as it producing competitive disadvantages for airports that are close to the borders of neighboring countries (manager magazin, 2014). The effect of this competitive disadvantage has been recorded in a way that people living near the border of especially the Western neighboring countries, like Belgium or the Netherlands have been choosing airports in those neighboring countries to avoid having to pay higher prices due to the air traffic tax.

Passenger numbers at neighboring airports have been growing at a higher pace than passenger numbers at German airports, especially in the bordering regions. Hence, German airports have noted a lower passenger growth rate as the average growth rate of Western European countries, namely only 0.7% in 2013 as compared to a 3% average growth rate of the Western European countries (BDL, 2014). The airline industry in Germany has overall economically lacked behind its Western European competitors (BDL, 2014).

Despite the above numbers, there have been various voices either criticizing or advocating the air traffic tax. Losing competitiveness against neighboring countries, losing jobs as a result of lower air passenger traffic at airports and as well the claim that the federal government is filling its own pockets have all been claims by the aviation industry (BDL, 2014).

Despite these claims, environmental organizations have supported the tax even though a notable environmental effect has yet not been recorded. They argue that the air traffic tax is a good starting point for achieving environmental improvements. Suggestions have been made for a European harmonization of the tax as similar taxes already exist in other European countries (BUND, n.d.). The air traffic tax, as suggested by environmental organizations like the World Wildlife Fund (WWF), should be used as a trigger for the reduction of subsidies that the aviation industry is still receiving. It has argued that maintaining this tax despite the claims of the industry to abolish it, would be one step towards driving the necessary environmental policy making towards a more sustainable future (WWF, 2012).

2.4 The Demand Side: Tourism and Air Travel Developments

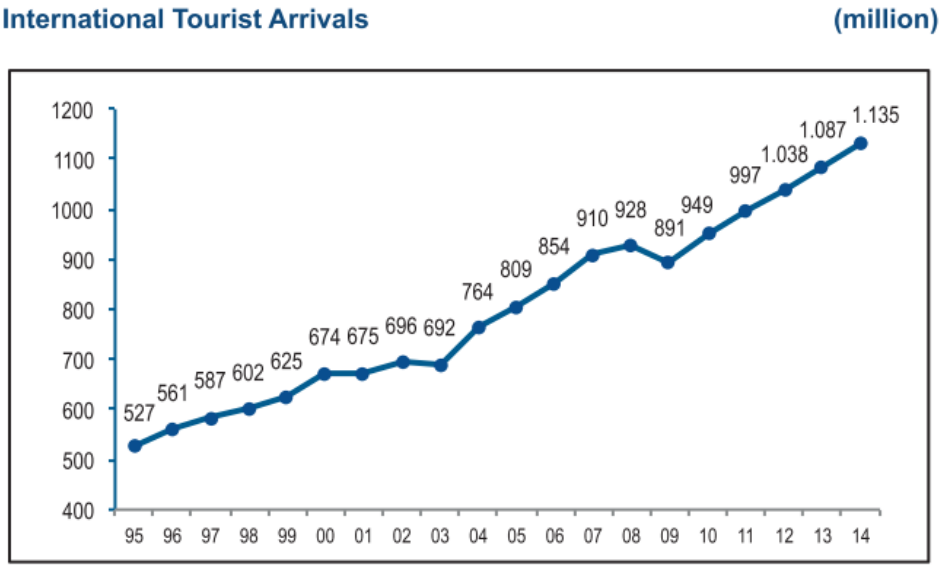
This chapter will first look at tourism and air travel growth, and trends that are driving carbon emissions. It will move on to give insights into the possibility of voluntary carbon offsetting as a tool for consumers to offset their carbon emissions caused by their flights.

2.4.1 Tourism Growth Rates and Trends as Emission Drivers

The following three subchapters will look more closely at the current growth rates of tourism, and air travel in specific, and at general tourism and social trends that are stimulating tourism and air travel demand. All these developments are driving emissions through the increase in air travel.

2.4.1.1 Current Tourism and Air Travel Demand Growth as Emission Drivers

In 2014, worldwide international tourist arrival numbers surpassed the one billion mark for the third consecutive year (UNTWO, 2015a). According to the annual report 2014 of the UNWTO (2015b), the last year counted about 1.135 billion international tourists staying overnight at a foreign destination (see Figure 2.3). For the year 2015, numbers are expected to grow by about 3% to 4%. Regarding regional growth rates, Europe was only on 4th position in regards to numbers from the previous year, behind the Americas (7%), the Pacific and Asian region with respectively 5% growth of international arrival numbers. Europe registered a growth rate of 4% between 2013 and 2014 (UNTWO, 2015a).



(UNWTO, 2015b, p. 11)

Figure 2.3 International Tourist Arrivals 1995-2014.

Europe stays the most visited region measured by international tourist arrivals. In 2014, Europe received a total of 588 million international tourists which is more than half of all international arrivals. 457 million of these arrivals accounted for the member states of the European Union (UNTWO, 2015a).

More than half of the international tourists arrive by air transport (53%) and 47% use alternative transport, like rail, road or water (Airbus, 2012; UNWTO, 2014). A decline of global air travel could be noted in the period of the global economic crisis but growth rates have picked up ever since. Within the 20-year period between 2011 and 2031, Airbus (Airbus, 2012) forecast annual air traffic growth rates of on average 4.7%. Air passenger numbers are forecast to amount for 7.3 billion by the year 2034 (IATA, 2014a).

Tony Tyler, General Manager and CEO of the IATA, acknowledged that within the next 20 years of aviation as many people will travel by air as did in the first 100 years of aviation (IATA, 2014a). Mr Rifai, Secretary-General of the UNWTO, acknowledged that tourism, and especially air traffic demand will continue to grow in 2015 as, for example, oil prices are currently at a new low since the world economic crisis in 2009. Transport costs are expected to drop, which will increase travel demand as at the same time purchasing power is expected to increase due to the lower oil prices (UNTWO, 2015a).

These growth rates are on one hand positive for the industry as well as the economic development of destinations, as Tony Tyler acknowledged in the past year (IATA, 2014a):

> It is an exciting prospect to think that in the next 20 years more than twice as many passengers as today will have the chance to fly. Air connectivity on this scale will help transform economic opportunities for millions of people. At present, aviation helps sustain 58 million jobs and $2.4 trillion in economic activity. In 20 years' time we can expect aviation to be supporting around 105 million jobs and $6 trillion in GDP (para. 5).

This quote reflects the positive, yet unilateral, vision of the aviation industry. Great air travel growth numbers are highlighted but the accompanying increase in emissions is neglected.

2.4.1.2 Tourism Trends as Emission Drivers

Besides the overall growth of international arrival numbers and air travel numbers, there are other trends in the tourism industry which have an effect on the increase in air travel demand (UNWTO et al., 2008).

One of these trends is the increase in long-haul travel which is expected to reach a total share of 24% by 2020 (UNWTO, 2015c; UNWTO et al., 2008). The overall distance travelled by tourists is projected to have increased by 122% from 2000 to 2020 (Peeters, Szimba, & Duijnisveld, 2007). Most of the distance is travelled by air and the share of air travel continues to grow at a faster pace than surface transport (UNWTO, 2014).

Another major trend in tourism demand that is worth noting is the forecast increase in the number of holidays people go on while at the same time they are expected to spend less

time in the destination. In other words, people are predicted to take more short-term holidays instead of fewer longer-term holidays (UNWTO et al., 2008).

These major trends in international tourism demand are important drivers of emissions and therefore essential to address when researching ways to mitigate emissions from tourism. Most international tourists arrive by air and as international arrivals are increasing, so is the amount of emissions (UNWTO et al., 2008). Moreover, research has shown that the greater the altitude the higher the emissions' impact on the greenhouse effect. As flown distances by air travelers are increasing, the CO_2 impact is simultaneously increasing (David Suzuki Foundation, 2014b).

In the light of the growth in tourist arrivals, evidence has shown that only a small share of people account for a great share of flights taken and distances travelled (Gössling et al., 2010). Access and use of air travel is not equally distributed across societies. Emissions from air travel have been called "luxury emissions" (p. 120) by some, as only a small proportion of people are travelling and an even smaller part of the population is causing great amounts of CO_2 emissions through air travel (Gössling et al., 2010). People in industrialized countries, primarily Western nations, show greater levels of mobility than people in developing countries. Travelers that are considered as 'highly mobile' exceed 50 tons of CO_2 emissions solely from travel each year (Gössling & Nilsson, 2010). This is about 12 times the average global annual amount of CO_2 emission per person and 1.250 times more than the per person emissions from air travel around the globe (Gössling & Nilsson, 2010). These numbers illustrate the unequal distribution of CO_2 emitters from air travel– the very mobile population – and the less mobile population.

2.4.1.3 Social Trends as Emission Drivers

People are travelling increasingly by air; take more and shorter trips and travel greater distances (UNWTO et al., 2008). The society is becoming more and more mobile which cannot only be reasoned by a greater supply but rather as well by social trends that stimulate demand. Burns and Bibbings (2009) outline some societal factors that stimulate air travel demand. The internet, for example, has given a great amount of people around the world better access to information; destinations and prices can be compared and people can easily book their next air journey online. Air travel is, as Burns and Bibbings (2009) suggest, becoming "just another consumer product" (p. 38), where destinations are just ticked off from a 'list' – a trend Burns and Bibbings (2009) call "trophy tourism" (p. 38).

Moreover, as prices for air travel are declining, people have becoming more attracted to air travel. For instance, events that used to be held at some close by destination, like family events or bachelor parties, are now organized at destinations that are easily and cheaply accessible by air (Burns & Bibbings, 2009). Shifts have as well been noticed towards, for ex-

ample, weekend shopping trips or short holiday breaks to long-haul destinations (Burns & Bibbings, 2009).

2.4.2 The Consumer Perspective: Emission Impact Reduction through VCOs

Efficiency gains in the airline industry are predicted to be outweighed by the increase in tourism demand as well as it seems to be a long way ahead for coherent international regulations on aviation emissions to be put in place (Cohen et al., 2013). Hence, researchers have argued that profound emission reduction can only be achieved with positive developments on the industry side *and* significant changes in consumer consumption patterns (Hoffmann, 2011; Miller et al., 2010).

Voluntary Carbon Offsetting (VCO) is one way for consumers to involve themselves actively in mitigating part of the carbon they produce when flying. Traditionally, VCO comprises the acquisition of carbon credits and allowances for all GHG emissions that exceed the maximum levels as outlined in the Kyoto Protocol. These maximum levels are set caps on carbon emissions in order to reach future emission reduction targets (Mair, 2011). A range of different types of offsets can be bought and some are traded, as explained in Chapter 2.3.2.1, in form of carbon allowances in the EU ETS.

The different types of VCO schemes

These different types of carbon offsets possess varying levels of credibility. The majority of the offsets offered in the voluntary market are of the type 'Verified Emission Reductions'. This means that third parties verify and validate the emission reductions made. As different standards, as opposed for example to 'Certified Emission Reductions', can be applied these VCO options have a quite low level of credibility (Gössling, Hultman, Haglund, Källgren, & Revahl, 2009). For instance, different projects can be employed for the purpose of 'Verified Emission Reductions'. These projects, however, differ in the way emission reductions are calculated, the way emission reduction is perceived and interpreted and the degree of monitoring by third parties and the verification of emission reductions. Possible projects can be comprised of, for example, reforestation, afforestation or the substitution of fossil fuels (Broderick, 2008).

The issues with VCO schemes

Options air passengers have to offset their carbon are in many cases to either choose the option for carbon offsetting when purchasing the ticket, or sometimes the price for offsetting the carbon is already included in the ticket price (Mair, 2011). Due to the complexity of

VCO options and their implications, Mair (2011) expresses doubts about consumers' understanding of this complexity and attests consumers a certain degree of confusion about the options they have to voluntarily offset their carbon. While in the past few years, airlines increasingly promoted their VCO options; confusion among consumers is still noted, especially when looking at the considerably low numbers of people actually offsetting their carbon (Mair, 2011). Lack of transparency, high complexity, inconsistency of the schemes and the aforementioned contradiction of placing the responsibility for carbon offsetting on the consumer instead of on the polluter (Mair, 2011), have all been subject to criticism (Broderick, 2008). Uncertainty prevails especially about the diverse measurement techniques of emissions and their reductions and the differing offsetting schemes by providers resulting in a lack of awareness and trust of the consumer (Gössling et al., 2009).

For consumers to develop greater trust in the VCO schemes, Gössling et al. (2009) argue on the basis of their research that the credibility of the schemes offered by airlines has to be improved (e.g. by making criteria for measurement more transparent) and consumers have to receive more and more valuable information about their offsetting options in order for them to more easily understand, and actively offset their carbon emissions.

In the light of these issues it is still uncertain how improvements will impact consumer responses to VCOs. For example, many airlines offer consumers to conveniently click a button while booking their flight that offsets their carbon. However, they have not noted a great increase in VCOs. This underlines the fact that simply making it easier doesn't mean that consumers are willing to voluntarily participate (Mair, 2011). McKercher, Prideaux, Cheung, & Law (2010) found that people will most likely not involve in voluntary climate change mitigation practices; even less likely if options are as complex as with the VCOs.

In terms of behavior, these schemes have been criticized as giving consumers 'an easy way out'. By paying an insignificant amount of money more for a flight, consumers are given the chance to get rid of the guilty conscious they possibly have when flying (Colwell, 2007). Whitmarsh, Seyfang, & O'Neill (2011) underline this thought by saying that:

> Concepts and tools do not necessarily motivate behavior change where individuals are not motivated to change or perceive barriers to doing so…amongst users of carbon calculators, many (though by no means all) use such tools to offset their emissions rather than to change their energy consumption behavior (p. 58).

With the aim of actually reducing emissions in mind, the VCO schemes as provided to consumers by airlines, are claimed to actually do nothing to achieve this. In this sense, Gössling et al. (2007) argue that, "carbon offsets in principle are environmentally risky

options that do nothing to directly reduce aviation emissions" (p. 241). The Intergovernmental Panel on Climate Change (IPPC) contends that VCO schemes are providing consumers with a tool to alleviate their guilty conscious which may be counterproductive to the attempts and obvious need to change consumer behavior (IPPC, 2007).

Market segments most keen on offsetting their carbon

There is, however, one market segment of air travelers who, despite the criticism against VCO schemes, purchase carbon offsets on a regular basis (Mair, 2011). This small segment of 2%-9% of the travelling public is characterized by a greater awareness of aviation's contribution to global climate change and, as Mair (2011) suggests, by a greater likelihood of changing behavior in regards to air travel to mitigate climate change.

Another group of consumers has been found to be willing to offset their carbon while at the same time wanting to maintain their freedom to keep flying. This group consists of people that have pro-environmental attitudes and generally act in an environmentally friendly way. This market segment has been found by a study of Whitmarsh and O'Neill to be likely to compensate for their air travel emissions despite their unwillingness to reduce their actual air travel consumption (Randles & Mander, 2009).

VCO as a 'good' initial tool to relieve one's conscious

VCO is regarded as a tool that enables some eager travelers to offset their emissions, or others to relieve their conscious, but as Hoffmann (2011) and Mair (2011) argue, will not solely and significantly mitigate climate change. VCO is accused as a tool that alleviates people's guilt while they get to maintain the same type of lifestyle which does not allow for becoming more environmentally friendly (Geiling, 2014). Additionally, as the term 'voluntary' implies, people can choose whether they would like to do it or not. Hence, Geiling (2014) argues that on this basis, the VCO scheme is unlikely to make a great impact on mitigating climate change. Hoffmann (2011) further suggests that it will be important for people to additionally change their behavior, their consumption patterns, and overall their excessive lifestyles in order for climate change to get anywhere close to mitigation. Until then, scientists claim that credible VCO is a good way for people to reduce their carbon footprint, as there are actually not many other things consumers can actually do to reduce their carbon footprint from air travel (Geiling, 2014).

2.5 Consumer Behavior and Discretionary Air Travel

In regards to the above insights on supply and demand side developments as well as on political developments in the tourism, and aviation industry in particular, it has become clear that if air travel is to become more sustainable in the future, all three levels will need to play its part in contributing to a more sustainable future of tourism and aviation. This is as well

especially true given the forecasts of aviation's growth rates and the marginal expected impacts of technological advances (Kroesen, 2013) and lacking global policy interventions (Miller et al., 2010).

Hence, the calls for voluntary behavior change to combat discretionary air travel in order to not persistently cancel out the positive developments in the aviation industry and on the political level, be it technological progress or policy introductions, have become louder (Miller et al., 2010). Behavioral change may come in form of the reduction of individual air travel, the change of transport mode for shorter distances, the general reduction of distance travelled or the advocacy for longer stays instead of numerous short term vacations (Kroesen, 2013). Thus, understanding subjective opinions on why people are choosing to travel as much by air in spite of the negative environmental effects, such as climate change, is of special interest to researchers so as to build the basis for more effective policy making and interventions directed at individual behavior change (Kroesen, 2013).

After looking at two alternative attempts at understanding increased travel behaviors from two different scientific perspectives, the main focus of this chapter will lie on shedding light on previous findings and analysis approaches of the gap between attitudes and behavior in regards to air travel.

2.5.1 Two Alternative Attempts at Understanding Consumer Behavior

Besides research looking at consumer awareness, attitudes and behaviors as well as at consumer behavior in the home and in the tourism environment, many different approaches to understanding consumer behavior in regards to discretionary air travel exist. Two of these interesting and different approaches are briefly presented in the following two subchapters.

2.5.1.1 The Psychological Perspective: Excessive Flying as Behavioral Addiction

Some authors have looked at discretionary air travel as a form of behavioral addiction (Cohen, Higham, & Cavaliere, 2011; Young, Higham, & Reis, 2014) and have found consensus in some regards as well as discrepancies between other attributes of behavioral addictions and discretionary air travel. One of the striking arguments against the claim that air travel could be a form of behavioral addiction is that the matter of addiction usually causes the satisfaction that the individual strives to regain over and over again. In the case of air travel, the air journey is only a means to a wider tourism or business experience, for example, relaxation or some form of business event (Young et al., 2014). Another argument against flying as a form of behavioral addiction is that an addiction usually comes along with negative consequences for the individual. In the case of flying, however, the consumer does not directly suffer from any sort of negative consequence but rather, consequences of flying have external affects which have a much wider scope than just negatively impacting the individual (Cohen et al., 2011).

Another term that has widely been used within the literature about discretionary air travel and climate change is "binge flying" (Cohen et al., 2011, p. 1071). Mark Ellingham, the founder of the Rough Guide, compared the aviation industry to the tobacco industry by claiming that if the aviation industry continues to give consumers as many purchasing incentives as it is doing now, while neglecting the consumption's impact on climate change, then the aviation industry is pretty similar to the tobacco industry (Hill, 2007).

2.5.1.2 The Sociological Perspective: Flying as Socially Embedded in Society

Besides the behavioral psychologists there are other researchers, mainly from the field of sociology, with the most salient being John Urry, who have looked at the reasons behind increased mobility from a critical sociological perspective. Urry (2010) describes how especially the "rich North" (p. 90) has turned into, what he calls "mobile societies" (Urry, 2002, p. 262). As capitalism and neo-liberalism have in the 20th century opened the door to increased economic development, so have people started to create "global networks" (Urry, 2002, p. 266) by the increased mobility they have (unequally) access to (Urry, 2010).

People have developed ever more dispersed networks, with friends, acquaintances and family members all across the globe. Meeting up with each other has also in the 21st century not lost its importance to the maintenance of relationships via online technologies; something Urry (2002) describes as the importance of "co-presence" (p. 256). One reason people travel as much as never before even in the light of developments in communication technologies, is that social connections are truly shaped and maintained through meeting face-to-face (Urry, 2002). The interchange of eye contact, of gestures, or of any other sort of body language is, as Urry (2002; 2012) argues, the essence of social relationships – something people feel the need to travel for in order for them to maintain their social networks (Urry, 2002).

Urry (2010) describes another phenomenon that stimulates people's excessive appetite for travelling. People seem to be going on a vast amount of trips for the reason of seeking experiences they can add to their 'list' of places they have traveled to. By travelling to those places, people gain knowledge they can talk about, and they can compare and contrast different places across the world (Urry, 2010). This is something Urry (2010) describes as "the language of mobility" (p. 90) which is brought about by increased travel, which he terms "binge mobility" (p. 91) in reference to the excessive mobility that is being practiced in the 21st century.

Urry (2010) argues that people will, no matter what, continue to travel. However, as resources, like oil, are not unlimited and increased travelling will start revealing ever more negative side effects, Urry (2012) forecasts that social networks may be put on a challenge when the world eventually might start to de-globalize. Another issue that is put forward is

the fact that this increased mobility cannot be maintained without taking note of its negative side effects, like climate change or social inequalities, which will eventually lead to another form of mobility – the mobility of "environmental refugees" (p. 97) who travel the world in search of better lives (Urry, 2010).

2.5.2 The Socio-Psychological Perspective: Understanding the Attitude-Behavior Gap

After the following subchapter has shed light on the scientific basis of the attitude – behavior gap, the subsequent section will review previous findings on the reasons, so the barriers to voluntary behavior change, for the existence of the attitude – behavior gap.

2.5.2.1 The Establishment of the Attitude – Behavior Gap

In an attempt at understanding consumer perspectives of discretionary air travel, researchers have taken different approaches in the past decades. Generally, findings have revealed two different, but in its wider meaning quite similar, 'gaps' (Cohen et al., 2013). This is on one hand the gap between home and away (Barr et al., 2010; Cohen et al., 2013), and on the other hand the gap that is the focus of this study; the gap between attitude and behavior, which has been examined in different ways and with different focuses, as explained in the following.

Numerous studies have looked at whether awareness of air travel as contributor to climate change has an impact on consumers' attitudes (Becken, 2007; Cohen & Higham, 2011; Hares et al., 2010), and whether awareness and attitudes play a role in subsequent travel behavior and travel decision making (Kroesen, 2013; Miller et al., 2010).

The majority of these studies found that awareness of, and attitudes towards climate change and flying differ in most instances and that awareness of aviation's contribution to climate change and/or pro-environmental attitudes are not a save indicator for behavior, nor for the intention to change behavior (Cohen & Higham, 2011; Cohen et al., 2011; Dickinson et al., 2013; Juvan & Dolnicar, 2014; Kroesen, 2013).

2.5.2.2 Attempts at Understanding Barriers to Voluntary Behavior Change

Researchers who have looked at the gap between attitude and behavior in regards to sustainable travel-, and travel decision making, have come across a wide range of findings and have subsequently attempted to explain the reasons for the widely found gap between attitude and behavior. The most commonly found reasons for pursuing behavior that does not align with one's attitudes and beliefs are reviewed below.

Lack of ability to transfer behavior into wider context

Barr et al. (2010) conclude from their findings among UK consumers that those people who are committed to sustainable behavior in a home environment struggle to transfer these attitudes and behavior into other, wider contexts of, in this case, travel and travel decision making. They claim that people are having difficulties at envisioning their choices about the environment in a broader sense – in a way that they understand the implications of their choices in regards to the environment in a more holistic manner (Barr et al., 2010).

Shifting the need for environmentally friendly behavior to the home environment

Becken (2007) and Barr et al. (2010) similarly found that even people who are environmentally conscious, at home and on holiday, are regarding the air transportation to the destination as a minor issue while it would be of greater significance to follow sustainable practices at home. Doing that is perceived as being easier than tackling a global issue, like reducing emissions from air travel (Becken, 2007; Buckley, 2011). In this sense Gössling et al. (2007) found that tourists were more aware of negative environmental impacts in their home environment, such as excessive water consumption, littering or driving a car everywhere, than of global impacts, like climate change, which are worsened by their decisions to fly.

This distinction between the 'home'- and the 'away' space has been compared to the model of Spaargaren, which suggests that depending on the lifestyle segment, people choose to follow different sets of rules and principles when making decisions (Becken, 2007).

The 'freedom to travel' as social aspiration

Another factor that has been found to be inhibiting people to change their flying behavior is that flying has gained a status where people accept it as being an "integral part" (p. 362) of their lives (Becken, 2007). People see flying as something that they are eligible for. The "freedom to travel" (p. 362) has been emphasized and insisted upon by study participants in Becken's (2007) research. This freedom to travel is regarded as something that is indispensable when expecting to maintain global relationships which have increasingly evolved through globalization and development in communication technologies that support the establishment of new, global connections (Becken, 2007; Urry, 2012). Higham et al. (2014) find support for the notion of 'freedom to travel' in their study and add that this movement might as well be stirred by the developments in the low-cost air travel sector, where cheap fares keep stimulating demand. Urry (2010) puts it in even more drastic words by saying that people's appetite for cheap air fares is somewhat obsessive.

Becken (2007) concludes that this persistence on the right to travel induces the assumption that air travel is not only a mean to seek, for instance, relaxation or adventure, but rather as well a symbol for one's connectedness and standing in society.

Lack of knowledge and awareness of the negative impacts of flying

Studies have found that among their study populations there was no consensus on the fact that flying as such is actually contributing to climate change (Barr et al., 2010; Gössling & Peeters, 2007). Similarly Juvan and Dolnicar (2014) found that whereas people who were behaving in an environmentally friendly way at home were relatively well aware of the negative environmental impacts of tourism in general, however, they were not certain whether and to what extent different activities, like flying, had negative effects on the environment.

An important barrier to behavior change has hence been identified as being the type and quality of information people are receiving from different information sources (Becken, 2007; Gössling & Peeters, 2007; Gössling et al., 2012). O'Conner, Bord, & Fisher (1999) explained how knowledge and awareness are connected and how these, with knowledge as the basis, will eventually lead to pro-environmental behavior. Gössling and Peeters (2007) found in their review of information on aviation's contribution to climate change that media representations and actual, accurate facts differ greatly. As the knowledge and awareness people gain of aviation's impact on climate change are greatly depended on the information they are provided with, it does not come as a surprise that sustainable awareness and perceived knowledge do not automatically lead to according behavior (Becken, 2007). Another factor that influences people's receptiveness for biased information is that climate change as a phenomenon is something abstract and people have hence had almost no personal experience with the direct impacts (Corbett & Durfee, 2004).

Public climate change information is often biased, simplified, presented from a certain perspective (e.g. airlines) and often times reflect a distorted reality with a lack of accuracy (Gössling & Peeters, 2007). The major body of information that reaches the consumer is written from the perspective of the aviation industry: the energy efficiency, the technological advances, the aircraft developments, and other sustainable improvements in the aviation industry are usually information that the consumer is confronted with (Gössling & Peeters, 2007). This, as Gössling and Peeters (2007) as well as Hoffmann (2010) acknowledge, does on the one hand lack a scientific basis, and on the other hand influences consumer awareness and their level and quality of knowledge in a way that behavior change is inhibited. Hence, the willingness of consumers to tackle their own behavior in regards to reducing air travel is regarded as relatively low as appropriate information about air travel's impact does not easily reach the consumer (Hall, 2013; Scott, 2011; Weaver, 2011).

Regardless of the type of information consumers are receiving, there is an ever increasing amount of information that consumers can access today (Rosenthal, 2010). Despite the fact that consumers are provided with greater amounts of information on climate change, global tourism numbers are as high as never before. In this regard, Becken (2007) argues that

the more information people are confronted with, the higher their confusion about the accuracy of information.

Additionally, there is an existing public distrust in public contribution schemes, like carbon offsetting, where consumers can freely decide whether they would like to contribute to making their flight more 'sustainable' or not. The lack of easy understandable information and the lack of transparency of these initiatives, which aim to stimulate more environmentally friendly behavior, are causing some people to neglect these measures as they are lacking confidence in the actual goals and outcomes (Burns & Bibbings, 2009).

Tourism spaces as 'extraordinary' environments

Another striking aspect that Barr et al. (2010), as well as a previous study conducted by Becken (2007), found is, that behaving in an environmentally friendly way in the home environment is often times used as a justification or 'excuse' to let go of these standards when making holiday decisions and while travelling. This has been found to be due to the fact that holidaying is seen as a form of escape from everyday obligations, commitments, duties and norms (Cohen, Higham, & Reis, 2013). Some studies (Cohen et al., 2013; Tung & Ritchie, 2011) have similarly concluded that tourism spaces are considered as something 'extraordinary'; something that is outside of the scope of environmentally conscious behavior as it is regarded as a special experience set apart from daily life routines (Cohen et al., 2013).

When going on holiday people have been found to think less about the negative environmental impacts of their journey than they would do about home based activities, such as wasting energy or harming the environment. The personal benefit from going on holiday (Cohen et al., 2011) and the cost of travel (Becken, 2007) have been found to be of much higher significance to tourists when making travel decisions than environmental concerns.

2.6 Theoretical Approaches to Understanding Consumer Behavior

In order to give greater meaning to findings on the attitude – behavior gap, researchers have applied different psychological and sociological theories to their primary data. Through the application of these theories, the reasons that people have for pursuing behavior that does not align with their attitudes were better understood and explained. Anable, Lane, & Kelay (2006) deliver an explanation of why a great range of different psychological and sociological theories have been used to explain the same phenomenon. They contend that there is no single theory that can fully explain the attitude – behavior gap (Anable et al., 2006).

Hence, for the purpose of giving this study some initial guidance in the analysis of data, the following chapter will review some widely accepted social-psychological theories that have been used in studies that sought to find explanations for environmentally harmful behaviors that contradict pro-environmental attitudes (Juvan & Dolnicar, 2014). Chapter 2.6.4 will then elaborate on the cognitive dissonance theory which has been chosen to function as a basis for this study.

2.6.1 The Theory of Planned Behavior

The theory of planned behavior has been used by researchers to explain why certain behaviors occur. The theory postulates that behavioral intentions and eventually actual behavior are the result of certain attitudes, social norms and the perceived control of the respective behavior (Ajzen, 1991). This theory has often times been used to analyze environmentally sustainable behavior as well as particularly environmentally sustainable behavior in tourism spaces (Juvan & Dolnicar, 2014). Juvan and Dolnicar (2014) have found in their review of studies that used the theory of planned behavior as a basis for explaining behavior that attitudes and subsequent behavioral intentions did not always succeed in accurately predicting behavior.

Research that has used the theory of planned behavior as a basis for the investigation of environmentally sustainable behavior has evidently revealed shortcomings in accurately predicting behaviors from people's attitudes (Juvan & Dolnicar, 2014). In this light, Anable et al. (2006) argue that the theory of planned behavior is not a sufficient basis for studies investigating complex issues such as environmental attitudes and travel behavior with regard to the negative environmental impacts, such as climate change. This issue was found to be beyond the scope of the theory of planned behavior (Anable et al., 2006).

Evidence for the failure of predicting behavior from attitudes has been given by numerous researchers that attempted to understand the reasons for certain travel behaviors (e.g. Barr et al., 2010; Becken, 2007; Cohen & Higham, 2011; Dickinson et al., 2013; Gössling et al., 2012; Lassen, 2010) and which in turn has led to the definition of the attitude – behavior gap.

2.6.2 The Attribution Theory

Attribution theory, which was first described by Heider in 1958, claims that there are two distinct ways of how humans explain their own behavior (Juvan & Dolnicar, 2014). The causes for certain behavior are either attributed to oneself, so the person is the cause for the behavior. This is called internal- or personal attribution. In other circumstances, the so-called external situational attribution, people do not see themselves as the cause for certain behaviors but rather the behavior is attributed to external causes (Juvan & Dolnicar, 2014). Attribution theory could hence be used as a basis for this kind of research as it would give

an explanation on whether people regard responsibility, to combat the negative causes of tourism and particularly flying, to be lying within themselves or whether they feel exempt from responsibility as they do not see themselves as the cause (Juvan & Dolnicar, 2014).

This theory has so far not served as a basis for the investigation of the attitude – behavior gap. Attribution theory could, however, be used if the purpose was to understand to whom people attribute the negative environmental causes of tourism and particularly flying. This would possibly serve as an explanation to why people have generally failed to translate their pro-environmental attitudes into travel behavior – namely because those impacts, including climate change, are not considered to be caused by themselves, which, hence, does not require them to take on responsibility and change their behaviors (Juvan & Dolnicar, 2014).

2.6.3 The Social Comparison Theory

Festinger (1954) first described the social comparison theory. The theory postulates that people like to compare their characteristics, their weaknesses and fortunes to the ones of other people. Festinger (1954) claims that people have a "drive for self evaluation and the necessity for such evaluation [is] being based on comparison with other persons" (p. 138). In further developments of the social comparison theory, Wills (1981) elaborated on the phenomenon of downward comparison as contrary to upward comparison.

Whereas in upward comparison people compare themselves with other people who are perceived as superior to them in order for them to have a standard to look up to and to strive for, in downward comparison people compare themselves with people that are perceived as being inferior in comparison to themselves. Doing this is said to be a natural process where people strive to enhance or maintain their positive self-view (Corcoran, Crusius, & Mussweiler, 2011). In the case of downward comparison, where people try to enhance their own self-perception, people do not strive to have "accurate information about themselves but rather [they] want to [just] maintain a positive self-image" (Corcoran et al., 2011, p. 127). In this case, comparing oneself to inferior people gives the respective person a better, a more positive, feeling about her- or himself or about the respective actions. Corcoran et al. (2011) state that by comparing oneself to inferior others even personal failures can be put in a more positive light when realizing that other people did even worse at something, or did even do worse things.

Downward comparison, as postulated by the social comparison theory, was first used by Juvan and Dolnicar (2014) in the context of environmentally destructive holiday behavior. The researchers found that people compared their travel behavior with travel behavior of others which was regarded as worse in comparison to one's own behavior. The theory was as well related to intra-personal comparison where personal behavior was compared to worse behavior that one would be capable of. It was as well transferred to the comparison

between industries where one industry was considered to be less environmentally destructive as compared to other industries (Juvan & Dolnicar, 2014).

2.6.4 The Cognitive Dissonance Theory

Cognitive dissonance theory serves as the basis for the present study as it will add to our understanding of people's reasons for possible inconsistencies between their attitudes and their behavior. The cognitive dissonance theory is a scientific theory that is suitable for the investigation of attitude – behavior gaps with the aim of establishing a basis for targeted intervention in order to get people to adjust or change their behavior to be in line with their beliefs (Juvan & Dolnicar, 2014)

Cognitive dissonance theory was first described by Festinger (1957) who explained cognitive dissonance as an experienced inconsistency of people's cognitions, meaning their opinions, beliefs, values, attitudes and their knowledge, firstly about themselves, secondly about their personal behavior and thirdly about things that happen in their surroundings.

Precondition for a person to experience cognitive dissonance is that he/she has the aspiration to reach a particular outcome to which he/she has attributed some value (Festinger, 1957). Soutar and Sweeney (2003) elaborated on one essential issue that Festinger (1957) had not as clearly mapped out. They express that cognitive dissonance is not to be understood as a particular condition but that it is rather to be understood as something that people experience to different degrees – so to a greater or a lesser extent (Soutar & Sweeney, 2003). Juvan and Dolnicar (2014) state that "the greater the dissonance, the greater the intensity of the action to reduce the dissonance, and the greater the avoidance of situations that increase dissonance" (p. 79).

Cognitive dissonance may be shown by people in different ways. When people experience cognitive dissonance they may show signs of frustration (Festinger, 1957); they may seem doubtful, confused, insecure and anxious or they may show similar signs of their experienced inconsistency of their mind and their behavior (Sweeney, Hausknecht, & Soutar, 2000).

Behavioral and attitudinal responses to cognitive dissonance

There are two different forms of responses to cognitive dissonance in order for the experienced inconsistencies to be rejected. This can either be accomplished by altering or adjusting behavior for it to be in line with one's beliefs, or beliefs can be altered or adjusted for them to be in line with one's behavior (Juvan & Dolnicar, 2014). Stone and Fernandez (2008) found in their research about triggers for stimulating behavior change that when people that have been experiencing cognitive dissonance are told privately that their behavior and their beliefs did not align, they are eager to change or adjust their behavior accord-

ingly. However, they found that this only happens when they get the opportunity to do so in public where their behavior change is publicly recognized (Stone & Fernandez, 2008). On the contrary, when people are reminded publicly about their failure to align beliefs and behavior, they will most likely not change their behavior but rather adjust their beliefs in order to cope with the inconsistencies (Stone & Fernandez, 2008).

Findings of cognitive dissonance in attitude – behavior gap research

The theory of cognitive dissonance has been used for analysis purposes in studies about environmentally sustainable behavior as well as studies concerned more specifically with environmentally sustainable tourism behavior (Juvan & Dolnicar, 2014). Some researchers have found evidence for cognitive dissonance to occur. Becken (2007) as well as Juvan and Dolnicar (2014) found in their studies that aimed to outline relationships between home and away behavior, that those people that were following sustainable lifestyles in their home environment reported that they were realizing inconsistencies between their behavior at home and their holiday behavior. They found that study participants were feeling anxious when confronted with negative facts about flying's impact on the environment. People have generally been found to be using a variety of psychological defense mechanisms in order to cope with the outlined inconsistencies (Becken, 2007; Juvan & Dolnicar, 2014).

One of the major defense mechanism has been found to be denial, which has manifested in different behavioral and attitudinal responses (Becken, 2007). Studies found that people would show denial in different forms: some would assign responsibility for the necessity of climate change mitigation to others (Miller et al., 2010), usually governments, innovators, airlines or frequently travelling business travelers (Becken, 2007; Hares et al., 2010; Miller et al., 2010); others would 'excuse' their flying behavior by stating that they only had a certain amount of time to make use of the privilege of flying; and then others would shift their personal responsibility to other spaces of their lives – usually the home environment (Becken, 2007).

Barr et al.'s (2010), as well as other researchers (Cohen et al., 2013; Hares et al., 2010; Randles & Mander, 2009) found the people that were most mindful of the environment in general and in particular in a home environment, in fact agreed to the fact that flying is a major cause of climate change but they were not willing to change their flying behavior considerably in order to comply with their sustainable ideals. Interestingly they were rather willing to pay taxes or to offset their carbon. This is another denial mechanism – to continue flying people are rather willing to 'trade-off' their guilty conscious by agreeing to pay extra for mitigation purposes (Randles & Mander, 2009).

Then there is the form of denial mechanism where people are awaiting action by others, hence, a collective response. Responsibility is shifted from the individual- to the public lev-

el, where taking action on an individual level is dismissed as everyone expects the 'others' to act simultaneously (Becken, 2007). Burns and Bibbings (2009) add that this type of denial may also occur as people feel helpless and lost when it comes to tackling a global issue, like climate change mitigation, on the individual level.

A form of emotional dissonance has been observed by Miller et al. (2010) who found that people articulated that they were having a guilty conscious when they realized that their pro-environmental beliefs did not align with their travelling behavior.

Cognitive dissonance theory as a tool for practical intervention

In the more general field of sustainable environmental behavior, studies (Aitken, McMahon, Wearing, & Finlayson, 1994; Dickerson, Thibodeau, Aronson, & Miller, 1992; Fointiat, 2004) have found that the directed intervention in form of reminding people, that have experienced cognitive dissonance, of the inconsistencies between articulated beliefs and behavior, has had a positive effect. Based on their findings, Dickerson et al. (1992) argue that the detection of cognitive dissonance and the subsequent practical intervention has evidently gotten people to change their behaviors – especially in situations where the appropriate behavior is attitudinal supported but not behaviorally followed. This argument has special significance for the present study in a way that case study participants generally have pro-environmental attitudes which is a good basis for future intervention to stimulate behavior change.

3 Research Methodology

The following chapter explicitly outlines the methodological considerations that serve as a basis for the present study. In order for the study to be coherent and to add credibility, the methodology of this study was composed in close contemplation of the research objectives and the aligned research questions.

3.1 Research Approach

Before conducting research it is important to decide for an appropriate research approach. The common distinction is made between an inductive and a deductive approach to research. Whereas the main purpose of the inductive approach is to generate theory, the main objective of the deductive approach is to test existing theory (Jennings, 2010; Saunders, Lewis, & Thornhill, 2012). For the present study an alternative approach was selected which researchers have called the 'abductive' approach to research (Dubois & Gadde, 2002). The abductive approach is not equal to a mixture of inductive and deductive approach. However, it is closer to the inductive than to the deductive approach. Emphasis is, rather than on generating or testing theory, more on the constant interplay between empirical findings and theory (Dubois & Gadde, 2002).

Hence, the study is based on an abductive logic and follows a procedure that Dubois and Gadde (2002) have named "systematic combining" (p. 554). This procedure was developed on the basis of the abductive approach that has been described by earlier researchers (Dubois & Gadde, 2002). The researchers describe systematic combining as, "a nonlinear, path-dependent process of combining efforts with the ultimate objective of matching theory and reality" (Dubois & Gadde, 2002, p. 556). This is what has been called the "matching process" (Dubois & Gadde, 2002, p. 556) where the interplay between theoretical framework, empirical findings and the data analysis is at the center of systematic combining.

As has been argued by Glaser, one of the inventors of the grounded theory approach, it is important to not make empirical findings fit into certain predetermined categories as the findings will lose its original value (Dubois & Gadde, 2002). However, whereas the grounded theory strategy to research is a fully inductive approach where the development of a theoretical framework before data collection is neglected, systematic combining stands for a development of a theoretical framework which may be modified in the process of research (Dubois & Gadde, 2002).

Systematic combining based on an abductive logic, was hence used in this study as it supports the idea of developing a theoretical framework beforehand in order to add value to the findings and the data analysis. The framework was aimed at not being too tight, as typical for deductive studies, neither too loose, as typical for inductive studies (Dubois & Gadde, 2002). This allowed for a more flexible framework which could be modified according to empirical findings across the period of data collection. This is what Dubois and Gadde (2002) call an "evolving framework" (p. 558). Theory was hence important in order to have some initial guidance but it merely served as a first starting point for analysis. Room was left for other theories to be drawn upon in the process of data analysis.

This approach is of value when the researcher has the objective to learn new things and to discover different relationships in addition to the ones that have already been determined by existing studies. An important feature of systematic combining is that, as opposed to an inductive approach for example, emphasis is put on *developing* existing theory rather than on generating new theory (Dubois & Gadde, 2002). Furthermore, as the focus of the study was to gain a better understanding of the relationship between attitudes and behavior, and to explore reasons for the barriers to voluntary behavior change, existing ones and new ones, the abductive approach was regarded as more suitable as for example the deductive approach would not allow for such discovery (Dubois & Gadde, 2014).

Also, theory plays a greater part in this approach as it does for the inductive approach. As aforementioned, value is given to the procedure of systematic combining by continuously referring from empirical findings to theory as well as vice versa. By doing this, it is argued that the researched phenomenon can be better understood and developed over the period of the research (Dubois & Gadde, 2002).

Hence, the theoretical basis of this study constituted of presumptions based on the review of previous research. In the process of conducting research, the theoretical framework has been further developed in order to add more value to the actual findings.

3.2 Research Design

Research design is the general plan that guides the research process. It is the plan that guides researchers in answering their research questions and in fulfilling the research objectives (Saunders et al., 2012). Hence, the research design adds value to the study by linking the collected data and the analysis of the data to the research questions posed in the beginning of the study (Xiao & Smith, 2006). By following a specific research design it is to be ensured that research objectives are achieved and research questions are answered in an unambiguously manner (New York University, n.d.). The research design has been broken down into three subchapters that successively outline its different elements.

3.2.1 Classification of the Research Purpose

The aim of this study is to explore behavioral barriers that inhibit the transference of general pro-environmental attitudes to behavioral responses in regards to travel decision making. The objective is to find out what is happening; to gain a better understanding of the already detected reasons for the inconsistencies between attitudes and behavior, and to explore new ones. For these objectives and for the purpose of getting a better insight into a phenomenon which, at the same time, hasn't received greater scientific attention, an exploratory research is suitable (Saunders et al, 2012).

Exploratory research is understood as a tool for researchers to be used when they attempt to explore a phenomenon which lacks a clear analytical basis from previous research and which is thus not comprehensively understood (Hyde, Ryan, & Woodside, 2012; Saunders et al., 2012).

The nature of exploratory research should, as the word suggests, be flexible. As a phenomenon that hasn't been dealt with to a greater extent is explored, new insights are to be sought and understood. This means that the direction of the research may change due to the collected data (Saunders et al., 2012). This is in line with the research approach of systematic combining, as explained in Chapter 3.1. Emphasis is put on the flexibility of the framework that gives guidance but does not restrict data collection and analysis to certain predetermined theoretical approaches.

3.2.2 Research Method

As for the reasoning for choosing to conduct an exploratory study in order to achieve the research goals of gaining greater insights into a field of research that hasn't received much scientific attention yet (Saunders et al., 2012), one of the reasons to choose a qualitative method for this study is that it also serves well if the phenomenon under investigation lacks scientific understanding (Creswell, 2003). This is the case for the present study, where there is a need to understand why people are behaving in a certain way and not the other. Obtaining greater insights into the thoughts of participants by the conduction of qualitative research enables the researcher to make greater sense of the collected data.

Qualitative research is also of value when the aim is to classify responses into categories in order to understand findings (Jennings, 2010). Jennings (2010) argues that in qualitative research emphasis is on presenting "a slice of life" (p. 128). This is the objective of this study: to present the opinions of a selected bunch of people with the purpose of understanding their view of things. These subjective insights are valuable in order to add to greater comprehension of the phenomenon itself, and not, as it is the case in quantitative research, to make assumptions and generalizations for the whole population (Jennings, 2010).

3.2.3 Research Strategy

As presented before in more detail, this study is based on an abductive approach to research with systematic combining as the 'tool' to accomplish this; an exploratory purpose and a qualitative research method. With these research features as a basis, and the main

research objective of gaining greater insights into the behavioral barriers to transferring pro-environmental attitudes to travel decision making in mind, an instrumental case study research strategy was considered as the most appropriate way to tackle the issue. An in-

strumental case study functions as a tool to understand a wider issue (Bhat, 2012), in this case the attitude – behavior gap.

Case study with heuristic features and interpretive intention

Case studies are of particular value when aiming at gaining an in-depth understanding of an issue where the goal is not to quantify results but rather to identify and understand causes of, in this particular case, behaviors (Lassen, 2010). The case study is heuristic in its features, that is to say that new meaning can be discovered or new relationships may emerge, which in turn may redirect the understanding of the phenomenon (Merriam, 1998). Furthermore, the case study has an interpretive intention, meaning that collected data built a basis for in-depth analysis of the phenomenon under study (Merriam, 1998).

Supporting the choice of the case study strategy to achieve the study's objectives

Case studies have long been dismissed as being weak in scientific value because they only investigate one specific phenomenon in its own context. Nevertheless, opinions have changed over the years and what was once seen as weakness is nowadays regarded as strength – namely the opportunity to gain greater understanding of a particular phenomenon by studying it in depth, holistically and within its real-life context (Dubois & Gadde, 2002; Merriam, 1998). As Merriam (1998) puts it, "[case studies] can examine a specific instance but illuminate a general problem" (p. 30).

Merriam (1998) supports the strength of the case study strategy in his book about case study research by saying that, "the case study offers a means of investigating complex social units consisting of multiple variables of potential importance in understanding the phenomenon" (p. 41). Merriam (1998) goes on by saying that case study research "illuminates meanings" (p. 41). These features of the case study design also support the achievement of the main objective of the present study of gaining a deeper insight into, and understanding of different people's explanations on the perceived barriers to voluntary behavior change.

Nowadays, the case study design is often times used in social sciences to investigate contemporary phenomena within its own, real-life context in order to create a basis for theory application and extension of such, where ever new insights are gained (Yin, 2014). Case studies have been used in social sciences (Yin, 2014) including tourism, hospitality and leisure, where the aim was to understand consumer behavior (Hyde et al., 2012).

In case study research the objective is not to generalize the collected data but rather to shed light on a specific case and to value and understand the particular findings obtained from the study (Ruddin, 2006). This aim is in line with the chosen qualitative research method which was adopted as the aim is not to make generalizations but instead to understand a particular issue in more depth (Jennings, 2010). Also case studies have been found to be of particular value when there is a need for conducting exploratory research so as to gain un-

derstanding of central factors which serve as the basis for further investigation and to enhance knowledge (Bhat, 2012). This is thus in line with the chosen exploratory research approach.

Different researchers (Dubois & Gadde, 2002; Eisenhardt, 1989) have pointed out that one of the essential keys of case study research is that it allows for the adjustment and refinement of the framework in the ongoing process of the field research. Also for this reason, the case study design was found to be well suited for this study in the light of the exploratory purpose of the research and the abductive approach to research which both allow for adjustments throughout the process of data collection and data analysis.

Furthermore, Saunders et al. (2012) and Yin (2014) underline that case studies are a good tool to find answers to research questions that ask 'why', 'how' and 'what' questions. This was also considered when choosing the best suitable research strategy.

A single case study design for an extreme case

When conducting case study research the researcher can chose between a single- and a multiple case study design. Whereas single case studies investigate a particular issue by means of one case, multiple case studies are used to get a broader sense of the issue (Saunders et al., 2012). For this study a single case study design (embedded) was chosen as it provided the researcher with the opportunity to understand a particular phenomenon more in depth by means of eliciting subjective opinions of study participants. The case was further classified as an extreme case (Saunders et al., 2012), as the assumption that environmental activists would show the slightest gap between attitude and behavior can be regarded as an extreme scenario for researching the attitude –behavior gap. Gummesson (2007) has a strong argument for the conduction of single case studies over multiple case studies. He argues that it is of greater value to gain an in depth understanding of a particular phenomenon by conducting a single case study than to conduct multiple case studies and generate answers to how often something occurs, where in the end the phenomenon is still not fully, or at least not better, understood (Gummesson, 2007).

Overall, the single case study approach has been found to be the most suitable tool for achieving the research goals as well as to generate answers to the posed research questions. The use of systematic combining for this type of case study further allowed the development of theory by going back and forth between theories, data collection and analysis which enabled the researcher to understand the researched issue in more depth and greater detail (Dubois & Gadde, 2002; Eisenhardt, 1989).

3.3 Data Collection

This chapter first presents the method that was used for the collection of primary data followed by a description of the interview design and an outline of the different steps in the sampling process. In subchapter 3.3.3.3, a table illustrates the characteristics of all subunits of the case study. Finally, the collection method and use of secondary data is outlined.

3.3.1 Primary Data Collection Method

For the present study, in-depth interviews were conducted. This primary data collection method was chosen due to the purpose of the research to gain insights into people's opinions, attitudes and behaviors. In order to understand the reasons for certain opinions, attitudes or behaviors it is useful to conduct qualitative research in form of in-depth interviews (Saunders et al., 2012).

In-depth interviews as data collection method

In-depth interviews were deemed as appropriate data collection method for this study as this method has, in regards to the objectives of this study, many advantages as opposed to the data collection by means of, for example, questionnaires (Jennings, 2010). For instance, in questionnaires it is difficult to maintain control about the actual respondent of the questionnaire, as it may be filled in by another person or others may help filling it in. Furthermore, whereas in questionnaires unclear questions cannot easily be clarified, during interviews questioning can be altered and explanations can be given at the spot (Saunders et al., 2012). When interviewing study participants, discussions can be led into numerous directions. By this freedom of interaction, more valuable insights can be sought and research questions can be answered in a more thorough and detailed manner (Saunders et al., 2012).

Semi-structured approach to interviewing

A distinction is made between structured, semi-structured and unstructured interviews. For this study semi-structured interviews were conducted as this structure was found to best suit the objectives and the scope of the research. Whereas structured interviews would be led by a strict interview schedule with no room for further investigation or follow-ups on given responses, unstructured interviews were as well neglected due to the fact that the level of control by the researcher is minimal; almost no guidance by the interviewer is possible and they are very time-consuming (Jennings, 2010). Moreover, semi-structured interviews give the researcher the opportunity to explore why people hold certain opinions, attitudes or perform certain behaviors in response to these (Saunders et al., 2012). Hence, interviews were semi-structured with open-ended questions and pre-determined themes that gave some initial guidance throughout the interviews.

By conducting semi-structured interviews, the researcher can guide the discussion in certain directions – themes only serve as rough thematic guidelines but the researcher has the freedom to dig deeper if desired, or to move the conversation towards a different, or new direction. Semi-structured interviews, hence, are useful when the objective of the study is to gain insights on controversial, sensitive or difficult topics where it is necessary for the researcher to establish trust between interviewer and interviewee and where softly steering the discussion in different directions may provide the researcher with valuable insights (Jennings, 2010). This way, understanding of certain opinions, attitudes and behaviors can be elicited by the use of semi-structured interviews. For example, trying to understand people's attitudes by means of a questionnaire is much more difficult as study participants are compelled to evaluate or rate their attitudes on a scale or on a continuum (Jennings, 2010). In semi-structured interviews, interaction is relaxed, questions from the part of the interviewee can be directly addressed, as well as uncertainties on the part of the interviewer can be clarified by ensuring the meaning of responses by the interviewee (Saunders et al., 2012).

Alignment of the collection method with the research approach and design

Furthermore, conducting in-depth interviews aligned well with the case study strategy and the abductive research approach based on systematic combining. This can be argued in a way that systematic combining is a flexible approach which advocates the constant going back and forth between framework, data collection and analysis (Dubois & Gadde, 2002; 2014). A case study strategy with in-depth interviews for data collection allows the researcher to exactly do that – to readjust questioning and data analysis in the process of data collection in order to elicit the desired information (Saunders et al., 2012).

The actual data collection

Interviews were conducted face-to-face where that was possible and via Skype where a personal meeting was not possible. All interviews were audio-recorded by means of a recording device. This was true for both, face-to-face as well as Skype interviews.

3.3.2 Interview Design

The purpose of choosing to conduct in-depth interviews was to gain greater insights into people's lines of thought and their explanations of their behaviors. Hence, semi-structured interviews were found to be an appropriate mean to achieve this, which was as well due to the flexibility that this interview structure offered the author (Jennings, 2010).

Pretesting the interview design

Before conducting interviews with the case study subunits, a pilot study was conducted in order to ensure that the constructed interview guide would elicit the information that were

necessary to answer the research questions (Jennings, 2010). These pre-tests of the interview were conducted with four students of whom the researcher knew that they were holding pro-environmental attitudes and that they particularly engaged in environmentally friendly behavior in their home environments. These pre-test participants were considered to be suitable due to the fact that their home based attitudes and behavior simulated the attitudes and behaviors of the actual study participants. One of the test interviews was conducted via Skype and the other three were conducted face-to-face. All test interviews were conducted the week before the actual data collection started; so between June 22nd 2015 and June 26th 2015. After the pre-tests, some revisions were made and the final interview guide was successfully composed.

Taking a non-activist approach to interviewing

During the interviews the researcher took a non-activist approach. This means that respondents' answers were not influenced by the researcher through the imposition of personal opinions on the interviewees (Jennings, 2010; Pernecky & Jamal, 2010). However, the way questions were asked was intentionally somewhat transformative (Pernecky & Jamal, 2010), as study participants were asked to reflect on their travel behavior in the light of their environmental attitudes. This transformative nature of interviewing was very much in line with the objectives of this study to get people to share their reasons for certain behaviors. Furthermore, it was as well in line with the theoretical basis of this study, namely cognitive dissonance theory, which requires people to reflect on their behavior in order for the researcher to understand whether, and how, they are experiencing cognitive dissonance (Festinger, 1957).

Use of an interview guide

In line with Jennings' (2010) suggestions for the conduction of semi-structured interviews, an interview guide was composed which listed the main areas for investigation. The interview guide also included a number of open-ended questions to be asked for each area of investigation (see Appendix A1). Overall, these topic areas and the respective open-ended questions only served as rough guidelines and were supportive to the researcher in maintaining the focus on the objectives of the interview. Questions were not always posed in the exact same way and order but rather flexibility was maintained and the interview was guided by both, the answers of the interviewee and the objectives of the researcher. This approach to semi-structured interview conduction aligns with Jennings' (2010) suggestions for a fluid nature of interviewing with an initial structure at its base to add value to the data that is collected.

This approach to interviewing goes well along with the objectives of this study to gain deeper insights into people's opinions, attitudes, beliefs and behavior. Letting interviewees

share their opinions by means of answering open-ended questions, worked well throughout the interviews.

In the beginning of each interview, interviewees were asked about the reasons they had to join the environmental organization and to engage in environmental protection. This was done in support of the assumption that not only all case study subunits were holding pro-environmental attitudes but that they were rather as well actively involved in environmental protection of their own accord. This was done in accordance with what Juvan and Dolnicar (2014) suggested for their own research. As suggested by Jennings (2010), this was also regarded as a good starting point of the interview in order to make interview participants feel comfortable through letting them talk about their own endeavors. To further support the accuracy of the presumption that study participants were generally behaving in a pro-environmental manner, interviewees were subsequently asked whether they were taking any pro-environmental behavioral action in their daily activities.

This was followed by a mellow transition to subunits' interest in travelling. By first letting study participants talk about their travelling experiences and what they liked about travelling a basis for further questioning about more sensitive topics, like the reasons for flying in spite of their pro-environmental attitudes, was established.

The precise outline of the English version of the interview guide can be found in Appendix A1.

3.3.3 Sampling

After outlining the specific sampling method that was used for this study, the contacting of the study participants is explained, and finally the characteristics of the sample and the sample subunits are described, and illustrated in form of a table.

3.3.3.1 Sampling Method

The present study followed a non-probability sampling method. This sampling method was chosen due to the case study design of this study. A particular target population (environmental activists) was researched with the aim of obtaining in-depth understanding of this specific group's opinions on the study topic.

In non-probability sampling not every unit of the population is in the same way likely to be chosen to participate in the study (Jennings, 2010). For the current study it was not regarded as essential for every unit of the population to have the same chance of being selected, but rather importance was put on specific criteria the actual sample had to fulfil, to best serve the objectives of this research.

To be part of the target population all sampling units had to be a member of some kind of environmental organization that has the purpose of environmental protection. This is due to the main objective of this study which is to gain a better understanding of the attitude – behavior gap and to understand the reasons that underlie inconsistencies between pro-environmental attitudes and unsustainable travel decision making behavior. As people that are engaged in pro-environmental activities through the membership in environmental organizations have been found to hold pro-environmental attitudes (Stern, Dietz, Abel, Guagnano, & Kalof, 1999) and show actual pro-environmental behavior (Juvan & Dolnicar, 2014), it was regarded as well serving the purpose of the research to determine the membership as a main criterion for selection. Environmental organizations that the interviewees were part of engaged in activities, such as protecting endangered bird and plant species, awareness raising of environmental problems and the need for its protection, natural forest tending, renewable energy and nuclear phase-out, the construction and attachment of nesting boxes, or educational presentations and workshops.

The particular reason for defining the main criterion as being an active member of an environmental organization was to ensure that participants do actual perform environmentally friendly behaviors and do not only classify themselves as being environmentally friendly. This was important as numerous studies (Dickinson et al., 2013; Hares et al., 2010) have found that positive attitudes towards the environment do not necessarily result in pro-environmental behavior.

For these reasons purposive sampling was used to select the preferred sample units that fitted the criteria and thus supported the achievement of the research objectives. In purposive sampling it is the researcher who decides which sampling units of the target population are selected to best facilitate the obtainment of the study objectives and the answering of the research questions (Jennings, 2010; Saunders et al., 2012). Purposive sampling was combined with snowball sampling (Jennings, 2010) as initial contact persons from environmental organizations were asked to forward the researcher's request to further members of the organization.

Moreover, as the study is based in Germany, sample units had to self-identify as Germans and they had to be over 18 years of age. Locations were chosen by the interview participants and were all, except the interviews via Skype, conducted in and around Bonn, Germany.

3.3.3.2 Establishment of Contact to Case Study Subunits

Contact to case study participants was established by emailing numerous environmental organizations which were either based in and around Bonn or which at least had a local branch in the area. This approach was chosen due to convenience as well as time and

financial restrictions. Whereas initial contact persons from the environmental organizations were exclusively approached via email, contact with further members was established via email as well as telephone.

When establishing the first contact via email, as well as when establishing further contact via email and phone, the exact topic and the objectives of the research were not mentioned in order to not encourage participants to think about answers to possible questions beforehand. This approach was chosen to reduce the likelihood of interviewee bias (Saunders et al., 2012). As the topic of this study is quite sensitive and as disclosing the terms 'climate change' and 'flying' in conjunction with 'environmental attitudes' might have deterred people from participating, these words were intentionally not mentioned. Instead, explanation of the research was limited to giving as much information as that the study would be about the 'environment' and 'travel behavior'. Further explanation was given on request and included the statement that research about travel behavior is conducted where the interest lies on different groups of people – which in this case would be members of environmental organizations.

This sensitive approach to contact establishment was adopted from previous studies on similar topics, like for example studies of the authors Cohen et al. (2013) and Juvan and Dolnicar (2014).

3.3.3.3 Sample Size and Characteristics of the Subunits

Regarding sampling size, it was not aimed to reach 'full' data saturation, but rather it was aimed at collecting as much data as necessary in order to be able to achieve the research objectives and to answer the research questions within the given time frame. Data saturation is described in the literature as something that can be achieved with a waste amount of data but as well with a small sampling size (Mason, 2010). It is argued that there can always be something new to be discovered but that data collection has reached a sufficient level once collecting more data starts becoming counterproductive to the respective study and its scope (Mason, 2010). Hence, for this study this stage was reached after the collection of date of 11 interviews.

The aim was to interview people across a wide range of ages in order to aim for case study subunits that were as heterogeneous as possible in terms of demographics. Study participants were between 27 and 72 years old. Three of the interviewees were female and eight were male. Their highest degrees ranged from O-Level to a Doctor's degree.

As illustrated in Table 3.1, eight (8) interviews were conducted face-to-face and three (3) interviews were conducted via Skype. Interviews were conducted between June 29th, 2015 and July 08th, 2015. They lasted between 22:30 minutes to 54:54 minutes.

Interview locations were chosen by the study participants to their convenience. The date and time was communicated after initial contact had been established and was scheduled by mutual agreement. Study participants resided in Bonn, Cologne, Bielefeld and Hennef, which is just outside of Bonn.

Every study participant was given an interviewee ID, according to the 11 subunits. Hence, interviewees will from now on be referred to as subunit (SU) 1 to 11.

Table 3.1 Contextual data of conducted interviews

ID	Age	Sex	Highest Degree	Main Occupation	Environmental Organization	Interview Type	Interview Location	Interview Date
SU1	60	M	Diploma	Head of Forestry Office	Working Group of natural Forest Management	Face to Face	Office Bonn	29 June 15
SU2	72	F	Diploma	Retiree Housewife	Ecumenical Environmental Initiative Hennef	Face to Face	Home Hennef	30 June 15
SU3	33	M	A-Level	Childcare Worker	Greenpeace Group Bonn	Face to Face	Café Bonn	01 July 15
SU4	45	M	Vocational Diploma	Bird Conservationist	Nature and Biodiversity Conservation Union Germany (NABU)	Skype Video	Skype	02 July 15
SU5	60	M	Diploma	Partial Retirement	Ecumenical Environmental Initiative Hennef	Face to Face	Home Hennef	02 July 15
SU6	64	M	PhD	Retiree	Friends of the Earth Germany (BUND)	Skype Video	Skype	03 July 15
SU7	70	M	O-Level	Retiree	Ecumenical Environmental Initiative Hennef	Face to Face	Home Hennef	03 July 15
SU8	31	M	Magister	n/s	Greenpeace Group Bonn	Skype Video	Skype	06 July 15
SU9	60	M	Diploma	Retiree	Friends of the Earth Germany (BUND)	Face to Face	Café Bonn	07 July 15
SU10	28	F	Masters	Controller	Greenpeace Group Bonn	Face to Face	Café Bonn	07 July 15
SU11	27	F	Bachelors	Student/ Tourism Consultant	n/s	Face to Face	Home Cologne	08 July 15

3.3.4 Secondary Data Collection

Secondary data was drawn upon in order to establish a frame for this study in form of a literature review. Different types of secondary data were reviewed. The main sources were scientific journal articles composed by for instance, tourism-, transport-, psychology-, and sociology- and geography scholars. These articles were mainly found in scientific journals like for example Annals of Tourism Research, Journal of Sustainable Tourism, Journal of

Transport Geography, Journal of Applied Social Psychology or The International Journal of Social Sciences. All these journal articles were retrieved from different databases where access was gained through, in the main, the University of Denmark, the University of Ljubljana, the University of Girona and the University of Bonn.

Electronic sources, like websites or online presentations, were reviewed as well. Statistics and annual reports were especially supportive in understanding the airline and tourism industry developments.

Numerous books were reviewed which were mainly accessed through the library of the University of Bonn, Germany.

Secondary data was hence used to build an initial basis and framework for the present study.

3.4 Data Analysis

In this study, thematic analysis was used as an analysis technique. Numerous researchers have come up with different approaches to thematic analysis (Kuckartz, 2014) but for the purpose of this study the approach discussed by Braun and Clarke (2006) was followed but modified for the exact purpose of this study.

Thematic analysis has been used in scientific analyses across different fields of research, such as social science or behavioral science (Braun & Clarke, 2015). Braun and Clarke (2006) argue that thematic analysis can be used for different types of research purposes. Among other purposes, they have found it to be a good technique for the analysis of studies that deal with the exploration of reasons behind people's ways of thinking, their feelings and their behavioral responses. Furthermore, research questions dealing with the identification of criteria or aspects that underlie certain decisions have as well been mentioned as suitable for an approach of thematic analysis (Braun & Clarke, 2006). As the main objective of this study is to identify and understand the underlying reasons for the attitude – behavior gap on the example of environmental activists, thematic analysis was found to be a suitable approach for the present study.

Thematic analysis, as suggested by Braun and Clarke (2006), is a flexible approach to analysis that allows for the development, refinement as well as the reorganization of emerging themes throughout the data collection phase and the data analysis phase. This aligns with the research approach to this study of systematic combining based on an abductive logic. As suggested by Dubois and Gadde (2002) systematic combining relies on the simultaneous conduction of data collection and analysis and the going back and forth between framework, data collection and analysis. Hence, thematic analysis was considered as an analysis technique that goes well along with the research approach to this study.

Conducting thematic analysis has the purpose of eliciting or identifying different patterns across the collected data. These patterns of meaning are identified through the analysis of the data in regards to the research questions (Braun & Clarke, 2015). Following the nature of the abductive research approach, the development of codes and subsequently the ordering into greater categories and themes, was to some extent based on existing findings about the topic while enough room was left for the emergence of new insights.

Hence, the steps undertaken in the analysis of collected data involved the listening to the audio recordings of the interviews (see Appendix B) the transcription and the repeated reading of all interview transcripts, and finally the development of codes for specific parts (words, sentences, paragraphs, etc.) of the interviews in reference to the research questions. Based on the codes, broader themes were developed in reference to existing findings and the content of the interview guide. During this step, close attention was payed to the emergence of new themes that were not salient in existing research yet. Throughout the data collection process, themes were further developed and named, data was rearranged and new themes emerged in the process of data collection and analysis. This procedure aligns with the recommendations for thematic analysis by Braun and Clarke (2006).

The developed themes gave initial structure to the outline of the findings (see Chapter 4) and served as a basis for structuring the data analysis (see Chapter 5).

Figure 3.1 illustrates the aforementioned process of data collection and data analysis.

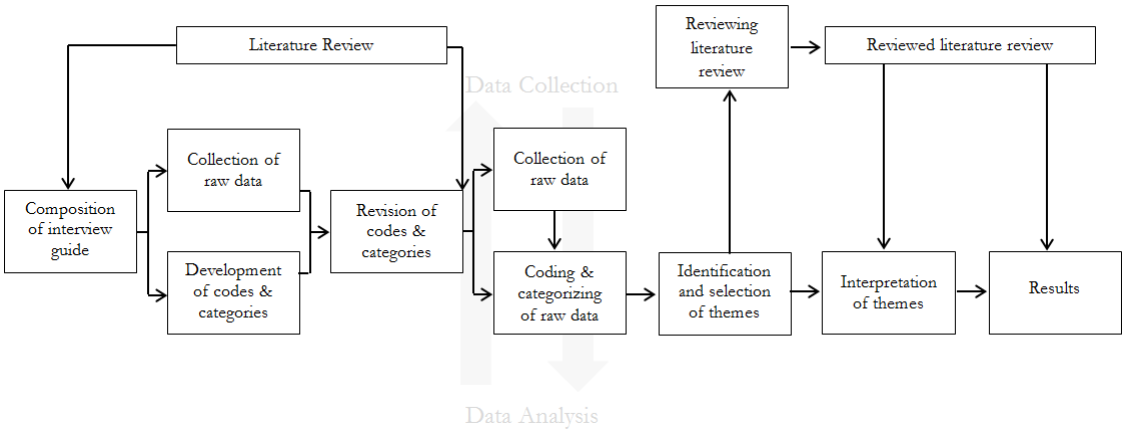


Figure 3.1 Data analysis process.

3.5 Assuring Trustworthiness

Assuring trustworthiness is a major and essential task in qualitative research. Whereas, there are many different terminologies that have been used to approach matters of trustworthiness in qualitative research (Shenton, 2004), Guba's (1981) four cornerstones of ensuring trustworthiness, namely credibility, transferability, dependability, and confirmability, built the basis for this study. Furthermore, Shenton's (2004) practical recommendations for

achieving these goals were taken into consideration and have to the greatest possible extent been implemented.

3.5.1 Credibility

Credibility refers to the degree to which collected data actually represents reality. In other words, the degree to which the study accurately reflects what was intended (Shenton, 2004).

Triangulation

As a form of preventive strategy to ensure a higher degree of credibility, three different forms of triangulation were used. Different data sources were used in order to support the arguments made by the study subunits (Shenton, 2004). In-depth interviews were supported by the collection of background information about the respective organizations that the study participants were part of. By reviewing some background information about the organizations it was aimed to better understand were certain opinions might be coming from (Shenton, 2004).

Sampling study participants from various different types of environmental organizations with different focuses, ranging from Greenpeace to an Ecumenical Environmental Initiative, added to the credibility of the study. This ensured that, even though all participants were members of an environmental organization, the described attitudes and behaviors were actually coming from a range of people with different organizational backgrounds and hence, different mindsets.

Encouraging honesty in study participants

Shenton (2004) emphasizes the importance of creating a trustworthy atmosphere in the beginning of each interview to add credibility to the collected data by minimizing the likelihood of interviewee bias. In this study this was done by informing each study participant about the possibility to refuse answering a question as well as by clarifying at the beginning of each interview that there is no right and no wrong answer (Shenton, 2004) and that the researcher is only interested in personal opinions. Furthermore, all interviewees were asked in the beginning of the interview whether they agreed to be audio recorded. To further ensure trustworthiness, the purpose of the audio recordings was explained and it was emphasized that it would serve data analysis purposes. It was also argued that by audio recording the interviews, the researchers could pay better attention to the interviewees' argumentations as compared to a scenario where notes would have been written down on paper. Additionally, all interviewees were informed that it was possible to keep their environmental organization, or any other sort of personal information anonymous.

3.5.2 Transferability

The concept of transferability and its application to qualitative research has been criticized by researchers who argue that qualitative research lacks the ability to be transferred to the wider population by the assumption that other studies in different contexts would reveal similar results (Shenton, 2004). However, as the objective of qualitative case research in general is to explore and understand the causes for the occurrence of different phenomena in its context (Lassen, 2010), so it was the objective of this study to elicit personal explanations for people's behaviors in spite of their environmental attitudes. This objective suggests that the focus was not to generate data that ensures transferability, but rather to explore specific issues within their real-life context (Dubois & Gadde, 2002), which will clearly be different for every study that aims to achieve similar results. This issue is further supported by what Guba and Lincoln argued, namely that case studies represent a "slice of life" (Merriam, 1998, p. 42) making it difficult or even impossible to get the same results from another study in a different context.

In Shenton's article it is suggested that as basis for any attempt at transferring findings from a single study, the exact context of the study has to be revealed and made available to the reader (Shenton, 2004). Detailed information about the case itself and its units, the place and time period of data collection and the method and the features of data collection have been outlined within this study so as to set the frame in which findings need to be understood (Shenton, 2004). Hence, for drawing conclusions on the transferability of this study, the setting and specific features need to be considered.

3.5.3 Dependability

Ensuring dependability has similar issues in qualitative research as transferability. It suggests that if the study is repeated "in the same context, with the same methods and with the same participants, similar results would be obtained" (Shenton, 2004, p. 71). This was also difficult to ensure as the objective was to gain in-depth understanding of people's attitudes and behaviors. Both, attitudes and behaviors may change over time and may be due to past experiences (Stone & Fernandez, 2008). Hence, as with transferability, dependability could only be added to the study by outlining the exact research design, including the way data was collected and analyzed (Shenton, 2004).

3.5.4 Confirmability

Confirmability can be added to a qualitative study by maintaining as much objectivity as possible in the course of the research. Patton has recognized that everything that is constructed and conducted by humans will automatically lack some objectivity (Shenton, 2004), such as the interview guide and the way of questioning during the interviews. Thus, adding confirmability to a qualitative study can be done by outlining to the reader how the

researcher has come up with his/her presumptions and how the researcher has decided for a research strategy, method and approach over other possible options (Shenton, 2004). For this study, Chapter 3 discusses the line of research in great detail – justifying the chosen methodological approaches. To further add to the confirmability of the present study, an audit-trail, as suggested by Shenton (2004) to illustrate the "decisions made and procedures described" (p. 72), is presented in Chapter 3.4 (Figure 3.1).

4 Reporting the Main Findings

The first subchapter 4.1 provides further background information about the case and its subunits, including information on study participants' environmental attitudes and daily behavior as well as some information about their frequencies of air travel. All other subchapters in this chapter are dedicated to the presentation of the empirical findings which are organized according to the elicited themes.

4.1 The Case and its Subunits

The case consisted of 11 subunits in form of participants who all had German nationality and who were all a voluntary member of an environmental organization. All subunits could thus be considered as German environmental activists who were all actively involved in protecting the environment.

To ensure that all subunits freely joined the respective organization because they actually cared about the environment and not because of other reasons, participants were asked to explain their reasons for joining the organization and the years of involvement.

The findings show that all study participants became members of the respective environmental organization as they had the desire to protect the environment in some way. Their time of participation in the organization ranged from 8 months to more than 30 years (see Table 4.1).

Table 4.1 Reasons for joining the environmental organization

ID	Environmental Organization	Reasons for Joining	Years of Membership
SU1	Working Group of natural Forest Management	Sustainable form of forest management as the non plus ultra; to make the benefits of the forest available for everyone; to sustain the forest as area of unspoiled nature	27
SU2	Ecumenical Environmental Initiative Hennef	Environmental thought through training (religious education) "Human Being – Master and Destroyer of the World"	25
SU3	Greenpeace Group Bonn	Parents were sustaining members of Greenpeace; gained interest as child; saving the world is somehow programmed	15
SU4	Nature and Biodiversity Conservation Union Germany (NABU)	Always liked the nature; got interest in botanic as a child and realized that something needed to be done about the bad condition of the plants	More than 30
SU5	Ecumenical Environmental Initiative Hennef	General interest in conservation; that had existed for many years when joined the group	15
SU6	Friends of the Earth Germany (BUND)	Always professionally involved with environment; realized things in administrative conservation are not enough & that environmental protection policy only comes through pressure of the population	30
SU7	Ecumenical Envi-	Through the environmental movement at that	27

	ronmental Initiative Hennef	time; Chernobyl was around that time and played a role and the general environmental awareness	
SU8	Greenpeace Group Bonn	Always had a natural environmental awareness; during time at radio station had own environmental rubric	5
SU9	Friends of the Earth Germany (BUND)	The environmental awareness has accompanied me since my studies; back then I decided to live environmentally friendly and started to eat consciously	6
SU10	Greenpeace Group Bonn	Wanted to do something and already thought about it for a while; always had the thought and finally got to do it	8 months
SU11	n/s	Wanted to do good; realized that it is of great importance to support the conservation of the nature; realized that it is on us to conserve the environment and not to just say 'it is none of my business'	5

To further ensure that interviewees not only practiced environmental protection in the name of the environmental organization but as well behaved in an environmental friendly manner in their daily lives, study participants were asked whether they were practicing any environmentally friendly behavior in their home environment. All of the study participants confirmed that they were as well undertaking environmental measures at home. Activities included: growing vegetables, eating consciously, saving electricity, buying at wholefood stores, recycling, being vegetarian, riding the bike, reducing waste, or buying seasonal food. For a detailed outline of the respective activities, refer to Appendix C.

Case study participants showed great differences in travel behavior, especially in the choice of transport mode and the frequency of air travel. There were some frequent flyers with three to five return flights a year, but as well people who barely fly; about once every few years. Among study participants there were people who tried to avoid taking the plane as much as possible. Flights within Europe were limited and domestic flights within Germany were foregone completely; mostly because of environmental reasons. Especially for travelling within Germany, study participants prioritized other modes of transport, like train, car and bus.

As expected, the gap between attitude and behavior was overall found to be quite small. However, differences among study participants existed to the extent to which the attitude–behavior gap could be detected.

4.2 Travel Motivations

Study participants articulated a variety of travel motivations which were divided into push and pull factors. Push factors were regarded as travel motivations that are more internal to the person whereas pull factors were considered as more external to the person, as these are usually things that attract people to the destination.

4.2.1 Push Factors

Freeing oneself from daily life routines and escaping from one's daily life was among the reasons for going on holiday.

> *"[…] one can free oneself from daily life… it's always different as if you holiday at home […]."* (SU1, personal communication, June 29, 2015)

> *"Travelling is attractive to me because you get an entire change of scenery; so you can really escape from your normal life and free yourself completely."* (SU8, personal communication, July 07, 2015)

The curiosity for something new and *"gaining new perspectives at life"* (SU11, personal communication, July 08, 2015) were as well among the push factors for travelling.

> *"[…] just the curiosity is the drive for travelling."* (SU9, personal communication, July 07, 2015)

4.2.2 Pull Factors

Study participants had a variety of reasons for wanting to travel; no matter whether they travelled primarily domestically or internationally.

Seeing, experiencing, learning, tasting and doing new things in the holiday destination were important factors for deciding to travel. These comprised of experiencing and learning about new cultures, tasting traditional food, seeing new landscapes and experiencing flora and fauna, getting in touch with locals, learning new languages, and just experiencing *"exotic"* (SU10, personal communication, July 07, 2015) destinations.

Another striking argument for travelling was that of VFR. Even with less frequent travelers VFR was a major pull factor for travelling to different destinations. Having a family member living abroad was a major pull factor for travelling overseas.

> *"The trip to Australia was also because of my daughter. She studied there for a year. Then we thought if we wanted to go, then now."* (SU1, personal communication, June 29, 2015)

> *"[…] and we are going to fly for the second time to Ethiopia, because her [his girlfriend's] daughter works there. Then you just have to go there."* (SU9, personal communication, July 07, 2015)

Even for study participants who explicitly tried to avoid having to travel overseas, the travel motivation of VFR would make them get on the plane without hesitation.

> *"Oh, and we don't have kids abroad. So if now xxx [daughter] would say, "I'm going to the US or New Zealand for a few years", then I could well imagine to say, "Ok come on, our child is there so we are gonna fly there"."* (SU5, personal communication, July 03, 2015)

4.3 Main Criteria for Air Travel Decisions

The decision to fly was influenced by a number of factors; factors that make travelling by air the best choice in comparison to alternative means of transport. These were especially the time that is saved by travelling by air, the price of the journey and the convenience factor.

Emphasis was primarily put on finding out about the criteria for shorter distance air travel where alternative transportation could have been an option.

The time that is saved by travelling by air as compared to other alternative means of transportation was expressed as being one significant aspect for making the decision to fly.

> *"The last time I flew was last winter to Finland. Actually it was as well because of the short travelling time. If you want to go there, you have to take the train and a ferry or the car and a ferry and then again a car and so on. That does drag on a lot."* (SU1, personal communication, June 29, 2015)

Time was a factor that people mentioned as being limited in their lives. This meant that choosing alternative transportation would have entailed a longer holiday overall, which, in many cases, was no option.

> *"Yes, so first of all our time slot is not that big. For example, from Frankfurt to Helsinki you could have taken a ferry in Kiel… but then you would simply need more time… but yeah, then it will become tight… that certainly plays a role."* (SU2, personal communication, June 30, 2015)

Then, in addition to the travel time, air travel was perceived as being the best option as well in financial terms. The combination of time and price factors played an important role in driving the decision to fly.

> *"Yeah, to Scotland there would have been other options to get there but then it just had time reasons because I have a job and then to take an extra day off to then take the train or something to get there… and of course flying has become so cheap by now that all other things are way more expensive."* (SU10, personal communication, July 07, 2015)

4.4 Awareness of Air Travel's Contribution to Climate Change

> *"The bottom line is that travelling, and especially flying is bad for the environment. The best for the environment would be if we stayed in one spot and didn't move anywhere. Every step that we take leaves something in the environment […]."* (SU11, personal communication, July 08, 2015)

The above quotation reflects the general awareness among study participants of the negative impact of flying on the environment. However, differences were obvious in the level of awareness study participants had of the impact of flying on global climate change. Gen-

erally no particular in-depth knowledge was found, and the present awareness was in the main based on incomplete knowledge and on assumptions about the actual impact.

The relationship between flying and climate change was seen as significant among study participants but assumptions were mainly made about the actual influence of flying on climate change, as can be seen from the following statements.

> *"Impacts of flying yes… but I don't know in detail… yes, that it is significantly more harmful that if contaminants are emitted up there as if they were emitted down here…that I know."* (SU3, personal communication, July 01, 2015)

> *"As I said I don't know anything in particular about climate change but of course air travel is part of the CO_2 package. I can't say what share it has exactly."* (SU1, personal communication, June 29, 2015)

Even though the impact of flying on climate change was primarily based on assumptions, emphasis was still put on the agreement to its severity.

> *"Yes, I see it very seriously [impact of flying on climate change] especially when I see that air travel is still growing internationally by 5 to 10 percent. Those are huge dimensions."* (SU6, personal communication, July 03, 2015)

However, differences were as well found in the level of negative environmental impact that was associated with flying. On one hand, flying was seen as a minor influence factor, as illustrated by the following example.

> *"Flying is one influence factor but not the major one. But I don't know how big it is. I only know that car travel and other things are at least as important."* (SU5, personal communication, July 03, 2015)

On the other hand, it was argued that flying is, as compared to other modes of transport, in terms of CO_2 emissions the worst, as described by the following excerpt.

> *"When it comes to means of transportation then air travel is in terms of CO_2 the worst […]."* (SU8, personal communication, July 06, 2015)

A total absence of knowledge about climate change was as well found while it was acknowledged that the negative environmental consequences of air traffic have been felt personally, for example after the volcano eruption on Iceland in 2010, or, as exemplified by the following example, when airplanes cause noticeable pollution.

> *"Yeah, this kerosene or how it is called… oh goodness so this technology is not my strength… but I mean we feel depending on how the air corridors are the different degrees of dirt [on the terrace]. So*

that's a clear prove that it is actually not that good." (SU2, personal communication, June 30, 2015)

Despite differences in awareness and knowledge levels, it was generally accepted that flying had negative consequences for the environment and the climate.

In terms of information sources, the following example shows how consumers are confronted with information that is written from a certain perspective.

"I'm always reading the brochures on the plane and I realize how much fuel the thing is using per person. And I'm always happy when it is relatively little. Especially on my flight to Finland there it was a similar value as of a car. Then I thought, "weeeell that's not ***that*** *bad. If you'd gone alone by car it would have been worse!"."* (SU1, personal communication, June 29, 2015)

4.5 Likelihood of Voluntary Air Travel Behavior Change

Differences existed among study participants in terms of the average annual frequency of air travel and the distance travelled. However, no matter whether it was one return flight annually, one return flight every other year or numerous return flights per year, study participants were asked whether they could imagine changing their own travelling behavior in any way.

Changing one's air travel behavior or even fully foregoing air travel was mainly no option for study participants which was in many cases reasoned or justified in different ways, as will be presented in Chapter 4.7.

Hence, whereas fully waiving air travel was mainly not considered as an option at all, it was acknowledged that an effort was already made to minimize one's own impact caused by travelling, as illustrated in the following statements.

"Nooo. Well, I wouldn't do that [forego air travel] in the light of what I am doing now. I wouldn't declare it as fundamental but rather I would say I'm trying to realize the program that I have in mind with as little air travel as possible." (SU1, personal communication, June 29, 2015)

A complete renunciation of air travel was categorically excluded due to the unwillingness to forego trips that study participants would like to do.

"But to forego a nice trip… honestly that will change when I'm getting older. Then it will change eventually." (SU2, personal communication, June 30, 2015)

The general issues with voluntary behavior change

As the previous findings show, there was a general reluctance to voluntarily change one's own travel, and especially air travel behavior. Study participants, who overall all considered themselves as 'good' consumers, maintained objectivity, surely still based on their own subjective perspectives, in regards to the possibility of general voluntary behavior change of the society. Numerous issues with this voluntary consumer approach towards a more sustainable future were brought up by study participants.

> *"Actually I have lost hope in humankind. Nothing will change. That will only change when the old Indian is right on day who used to live in the US and who said, "the humans will only realize that you can't eat money when the last tree is cut down and the last fish has died". And that's what's going to happen to humankind."* (SU9, personal communication, July 07, 2015)

Voluntary behavior change to move towards a more sustainable future was regarded as desirable but not realistic overall. It was argued that, *"no one will voluntarily take a step back. That's why it is utopic to think that people would suddenly start flying less."* (SU11, personal communication, July 08, 2015)

> *"The ideal solution would be that everyone will just become smart and everyone would be aware of their behavior and would voluntarily change it. I just have the feeling that that takes a while and I don't know if it has ever worked this way before."* (SU3, personal communication, July 01, 2015)

Hence, the only possible solution as suggested by study participants would be to work towards external intervention as they are personally not voluntarily eager to change their own travel behavior. Furthermore, waiting for voluntary behavior change in the society was not regarded as an effective way to tackle the problem.

4.6 Voluntary Carbon Offsetting: Reducing the Impact

Worth noting is that while behavior change in terms of reducing one's flying frequency was not considered as an option, some study participants were already offsetting their carbon footprint and others would be willing to do so – if it would be more transparent and more easily understandable. Study participants expressed that they were using VCO schemes to reduce their impact of the flight – this was usually shared without having been asked directly, so answers came unprompted. Information about one's VCO behavior was in most cases a response to the question whether environmental attitudes played any role in air travel decision making, as is illustrated in the following examples.

> *"I just try to compensate the CO_2 amount through AtmosFair [German VCO scheme]. I'm always doing that very dutifully."* (SU9, personal communication, July 07, 2015)

> *"That's playing that kind of role [the environmental thought] that I'm definitely compensating it with AtmosFair."* (SU8, personal communication, July 06, 2015)

"Actually the environmental thought doesn't play a role [in the decision to fly] because I think that I am already trying to reduce my CO_2 output… well, then I am just hazarding the consequences but I am also doing this CO_2 compensation […]." (SU10, personal communication, July 07, 2015)

It was also acknowledged by some that these compensation schemes are *"a little bit of window dressing"* (SU6, personal communication, July 03, 2015).

In some cases the "*confidence and the transparence"* (SU4, personal communication, July 02, 2015) were missing and another participant found it *"too elaborate or confusing"* (SU7, personal communication, July 03, 2015) to actually participate.

4.7 The Barriers to Voluntary Behavior Change

The main focus of this study is to discover the reasons people have for making the decision to travel by air even though this behavior does not align with their pro-environmental attitudes.

The findings outline the reasons study participants came up with for the attitude – behavior gap; some were prompted responses after having been asked specifically about the reasons or about their feelings in order to get a greater insight; and others were unprompted answers where study participants provided the interviewer voluntarily with reasons for the inconsistencies between their pro-environmental attitudes and their behavior.

For the ease of following the presentation of the findings, reasons are presented according to the developed categories.

4.7.1 Travelling is Necessary due to Personal Aspirations

Travelling was by some described as being part of their personality and as something that was personally aspired or desired. Travelling, especially long distance air travel was described as being a necessary ingredient to one's personality.

"I think that travelling is just a central component of my personality." (SU4, personal communication, July 02, 2015)

Travelling was further described as an essential part of life that is necessary to keep the personal engine going in one's daily life.

"That means that I think I wouldn't be able to do all the work, all the voluntary work I am doing […]. I wouldn't be able to cope with all this… I need that for relaxation. That's why I'm taking the liberties to at least fly intercontinentally." (SU4, personal communication, July 02, 2015)

The need to get to know the world a bit better through travelling was seen as important reason for travelling by air to more distant destinations. It was regarded as important for

developing people's personalities and it was hence considered as something that was important for society to strive for.

> *"I'm aware that it is contributing to environmental pollution but I think that getting to know the world a bit better is very important."* (SU2, personal communication, June 30, 2015)

4.7.2 Point in Time Constraints

Specific findings on the argument that a lot of time is saved by travelling by air were outlined in Chapter 4.3 in more detail in the context of presenting the findings on the main criteria for deciding to travel by air. In order to not be repetitive, findings in this section are be presented on *time* as being a specific moment in life instead of being something numerical.

The point in time was a reason for participants to travel, despite environmental concerns. Not having a family, and hence no restrictions so far, was presented as being a travel stimulator.

> *"I really like to travel. I have decided to choose more distant destinations for now because I thought in regards to family formation in later years it might not be possible anymore, so I rather do it now."* (SU10, personal communication, July 07, 2015)

Travelling within Europe and domestically within Germany was postponed until later when restrictions for long-haul travel might have come about.

> *"I am personally saving that [travel in Europe and Germany] for the time that I'm not that fit anymore so I can keep travelling now. I have been thinking that for now I'm doing these faraway destinations and when I have kids one day I will travel Europe and when I'm old then Germany… you simply never know what's coming."* (SU10, personal communication, July 07, 2015)

The same issue is outlined by an older person who felt like the time for travelling (in Europe) was now and getting older would probably change the traveling behavior after all.

> *"I think that will change anyway with increasing age. Now that's a bit like 'if not now, when?'… something like this, right. So I think that's a question of age as well. As long as I can, I want to do that. But as I said, it is limited to Europe! But I still want to see a lot more!"* (SU2, personal communication, June 30, 2015)

The following quotation illustrates the general time constraint, or in other words, lack of lifetime, that people perceive as they are getting older.

> *"Maybe I have about 30 more years in which I can nicely, and in good shape, travel. I might only have about 20-25 long-distance trips left… then I have to hustle."* (SU4, personal communication, July 02, 2015)

4.7.3 Flying vs. Staying Home

For long-distance travel the lack of alternative transport modes was emphasized. While still willing to visit faraway destinations, the only two alternatives that were expressed were to either take a flight to get there or to refrain from travelling to those destination overall; which was commonly not regarded as an option either.

> *"I'm always thinking about it but on the other hand you have to come to a decision. You can only say I'll do it or I don't."* (SU6, personal communication, July 03, 2015)

When no alternative to air travel was seen, a compromise was accepted as the decision could only be made between taking the plane or staying home which was no alternative either.

> *"Well that's the compromise, right. That you tell yourself that actually you are doing it with a guilty conscious but if you want to do that trip to that destination then it is just like that, that we have to fly."* (SU5, personal communication, July 03, 2015)

4.7.4 Behaving Environmentally Friendly at Home and in the Destination

> *"I deserve that! I do so many good things, so I am allowed to once be a pig as well. That is totally OK!"* (SU4, personal communication, July 02, 2015)

As the above quotation illustrates, a distinction was made between behavior in a home environment and behavior when planning and going on a holiday. Doing good at home was a reason to neglect environmental attitudes and behaviors when having the desire to travel as the following example illustrates.

> *"So honestly, I have to say now that I drive […]… I have a small car, I have a natural gas car… that's already something. My husband also drove a hybrid for a while. […]. So well, right… so no, I think yeah…those are the things I can do, which I am in control of and which I really like to do… consciously … but to forego a nice trip… I'm honest… my travel behavior will change with my age. That will eventually change."* (SU2, personal communication, June 30, 2015)

Air travel was accepted as it was considered as something that could be compensated with environmentally friendly behavior in one's daily life, for example protecting the environment and animals from being harmed.

> *"I am contributing a lot to making things better… and especially what I am doing here at the office… I'm really successful. And then I think, if I once again rescued a few million birds from being shot or trapped, then I can also fly to Australia and look at the birds there."* (SU4, personal communication, July 02, 2015)

Conscious eating, and especially being vegetarian, was as well a reason for allowing oneself to be a *"pig"* (SU4, personal communication, July 02, 2015) in other situations.

> *"I'm palliating this to me in a way that I say, "no, for that I am saving on so many other ends". I'm always saying, the meat production produces more CO_2 than the entire traffic in the whole world together… that is why."* (SU10, personal communication, July 07, 2015)

Eating consciously, so buying local produce, while at home was another reason for allowing oneself to keep travelling to distant destinations.

> *"So when I do travel to distant destinations, then I'm trying to at least be more conscious in other situations and act more sustainable than other people maybe in order to compensate that a little bit. So yeah… when I'm already travelling far, then my apple doesn't also need to travel far. Then I can eat that one definitely from Germany."* (SU11, personal communication, July 08, 2015)

Pro-environmental behavior, like for example buying food in a wholefood store in the destination environment, was as well mentioned as a compensation for taking the liberties to fly intercontinentally.

> *"So when we are there, we don't behave like pigs but rather we behave in the same way as we are used to from home […]."* (SU4, personal communication, July 02, 2015)

4.7.5 Own Behavior vs. the Behavior of Others

Study participants reasoned their own air travel behavior by comparing it to other people's travel behaviors, to other people's types or purposes of holiday making and to other people's lengths of holiday making, as compared to their own length of holiday.

Own air travel behavior vs. behavior of others

Study participants liked to compare their own behavior with the behavior of others. Their own flying behavior was put in relation to what others do or don't do in regards to the environment in general, and in regards to air travel in specific.

> *"I don't want to be accused by other people who basically do nothing, that I'm going on intercontinental flights. I'm doing that, of course! That's my rascality. The others eat one schnitzel every day."* (SU4, personal communication, July 02, 2015)

It was also mentioned that other people fly a lot more than the study participants; to the same destination every year. As illustrated by the following example.

> *"And there I am just differentiating myself from others who fly to Mallorca or to some other place every year. […] I wouldn't feel like always flying to the South because that would simply be one more flight a year."* (SU1, personal communication, June 29, 2015)

People in general were as well mentioned as a reason why it was not striven for a reduction in one's own air travel behavior. It was not accepted why one should stop travelling while others keep on flying.

> *"When I think about why I fly, then I do think that everyone is doing it as well and why shouldn't I be allowed now."* (SU11, personal communication, July 08, 2015)

The effect of changing one's own travel behavior was, as compared to others who, in spite of one's own behavior change, keep flying, seen as not relevant in the bigger picture.

> *"The problem with such things is that you have to be convinced of the effectiveness and when you, as an individual in a world with crazy frequent flyers, say that you stop flying then the effect equals zero. It just doesn't have an effect. And that's a kind of an impediment. Everyone else is flying like crazy and I just say now I'm not flying anymore."* (SU1, personal communication, June 29, 2015)

> *"I can only start with myself… that manifests itself only in the per mill range when I change a little bit, but yeah…"* (SU2, personal communication, June 30, 2015)

One's own flying behavior and general environmentally conscious behavior was regarded by study participants as being *"within the green range"* (SU1, personal communication, June 29, 2015).

> *"Generally the positive feeling is dominating… that you say it's a good idea to do it that way now and then you are observing everyone else around you… and yes when I have a look around and see how often other people fly then I think, I am still within the green range."* (SU1, personal communication, June 29, 2015)

> *"In exchange I'm not doing so many other things. It just has to work. I still think that my environmental record is pretty good. Better than of some others."* (SU4, personal communication, July 02, 2015)

Own travel type/purpose vs. travel type/purpose of others

The own type or purpose of travelling was distinguished from other types/purposes of holiday making in a way that those other types where regarded as worse than the own behavior.

Holidaying within Germany without the use of air planes and cars was contrasted with annual flights to Mallorca, which is done by many others.

> *"So every year I go to the North Sea for three weeks holiday. Totally without air plane and without a car. And in that I distinguish myself from many others who fly every year to Mallorca or some other place."* (SU1, personal communication, June 29, 2015)

Hotel- or resort holidays where people spent their holidays at the buffet or the beach were considered to be worse than the own holiday behavior.

> *"I find it quite idiotic that you fly, for example, to the Dominican Republic to lie at the beach. […] It's partly pretty insane where people all go only to do something there that they could also do somewhere else with significantly less effort."* (SU4, personal communication, July 02, 2015)

Own long holidays vs. short holidays of others

Study participants made as well a difference between their own time spent in distant destinations and other people's short trips. To compensate the long distance covered by plane, it was acknowledged to be important to spend at least a certain amount of time within the destination, as illustrated by the following example.

> *"I would not fly for one week to the US. Or some other place… intercontinentally. Well no, if you fly then you make something big out of it… a bigger journey… a longer journey… so it is actually worth it and that the impact on the environment has actually payed off. Well, that you don't fly long-distance for five times a year, for a week."* (SU11, personal communication, July 08, 2015)

Going often to the same place by air travel for shorter periods of time as well as flying domestically was neglected.

> *"The neighbors they… I don't know how often they have been to Tenerife… they are going there 5-6 times a year…they only travel by air. We are doing one [air journey] a year and other then that we are going by train or bus. […] An acquaintance is flying to Sylt. That would never cross my mind. Or a sister of a neighbor, she flew to Usedom. So it would never cross my mind for domestic routes"* (SU7, personal communication, July 03, 2015)

4.7.6 Air Travel vs. Other Industries

Flying was in many instances compared with other means of transport and it was regarded as not that bad in comparison with, for example, ships or cruise ships.

> *"Besides doing a transatlantic tour by ship is a rascality as well with the heavy fuel oil."* (SU4, personal communication, July 02, 2015)

> *"Yeees, and it is also known that those [cruise ships] are big polluters. I mean then the flight is more acceptable I think… when you look at the sewage."* (SU2, personal communication, June 29, 2015)

Not only was flying compared with going by ship in regards to environmental pollution but as well with other means of transport, like road and rail travel. Doubts were articulated in regards to whether other means of transport were actually better in terms of environmental pollution in comparison to air travel.

"And then I'm asking myself whether it is better to go with a huge cruise ship to the US… no, because they are pouring their heavy fuel oil right into the Atlantic ocean as well. Or is it better to go by car… trains as well… well that's probably still the best. Everything has its disadvantages." (SU11, personal communication, July 08, 2015)

Another argument was that tourism is only one industry that is harming the environment and that there are others which are doing the same bad.

"But the tourism industry is not the only one which is harming the environment. The automobile industry and the food industry are also playing its role." (SU11, personal communication, July 08, 2015)

4.7.7 Flying Behavior is at its Minimum

Study participants also argued that their own travel behavior was actually not that bad and that it could be worse. The wish to travel more was actually there but due to environmental concerns and time constraints, traveling was reduced to the amount that could be reconciled with their conscious and with the time constraints.

"I think that I am denying myself at least one intercontinental flight a year which I could actually afford. Due to environmental reasons! Then I'm thinking that is just too bold. I can just not do that. Not because of myself and not because of all my colleagues." (SU4, personal communication, July 02, 2015)

"Well, we don't even travel that much. Once a year that is OK… actually we don't travel that much… it's a time factor… we would probably travel even more." (SU2, personal communication, June 30, 2015)

4.7.8 The End Justifies the Means

Regarding air travel that is done in the context of the environmental organization, study participants were members of, it was acknowledged that the end would justify the means – allowing them to travel to achieve something important in regards to the environment.

"I am thinking about it but in the end you have to decide what is more important for the decision in that moment. […] Well, how do I say… 'the end justifies the means'." (SU6, personal communication, July 03, 2015)

A study participant who barely ever travels by air as he is not a fan of travelling as well as he is trying to act environmentally friendly, acknowledged that he would not think about it twice if the environmental organization asked him to fly somewhere.

"But when xxx says that they need someone in the location, then they would fly someone there from Germany and then it would not matter. Then I wouldn't think about it for too long. I would just hope

that what I can achieve there politically will eventually compensate for that." (SU3, personal communication, July 01, 2015)

4.8 External Intervention Issues and Possibilities

"Consumers sometimes have to be forced. Not to do what's good but rather to the benefit of the environment. So, I do think that it needs more regulations. On the part of the state. That you somehow have to increase prices or that you make environmentally desirable products […] more attractive. That's important for me. But for that it needs political pressure. As well on me!" (SU4, personal communication, July 02, 2015)

As the above statement shows, the call for political intervention, for example in the form of levying taxes, was loud among study participants as voluntary behavior change was not considered as a worthwhile solution for themselves, and neither for others.

Study participants mentioned on one hand different issues that have so far been impeding more sustainable developments in the airline industry and the demand for air travel (Chapter 4.8.1). On the other hand ideas for possible interventions, based on their own subjective, yet holistic, perspective, were brought forward (Chapter 4.8.2).

4.8.1 Issues Underlying the Call for External Interventions

Numerous issues were identified that underlie the calls for external intervention. These were grouped into issues concerning the supply side, which is providing people with the airline services; and issues on the political level, where different subsidies are currently growing demand for air travel.

4.8.1.1 Supply Side Issues: Interest in Increased Demand

The cheap price of air travel as compared to other modes of transport and the profit orientation of the supply side were mentioned as the biggest supply side obstacles to sustainable development.

The current price of air travel

As described in previous findings, airfares were perceived as being cheap, many times cheaper than train or ferry tickets and cheaper than going by car (see Chapter 4.3). The study participants have personally profited from it, as illustrated by the following example.

"I like that they [the flights] are so cheap. But of course, they are too cheap. I do think that. I'm happy about it, I'm benefitting from it but they are too cheap. Defo!" (SU4, personal communication, July 02, 2015)

Besides the benefits cheap air travel provided study participants with, it was further acknowledged that air travel as such was too cheap which made flying attractive to people.

> *"It's just like that if we didn't have the cheap prices then you might not fly that much. If you can fly to Mallorca for 99€ over the weekend then you just fly there for four days."* (SU6, personal communication, July 03, 2015)

The sale of cheap airlines tickets was compared with *"dumping"* (SU3, personal communication, July 01, 2015) as it's done in discounters. Air travel was described as something so cheap that people just say, *"Oh sweet, yeah right then I'm doing that*" (SU3, personal communication, July 01, 2015).

The cheap airfares were further described as deterring interest in looking for alternative ways to get to a destination.

> *"As long as you can buy a Ryanair ticket for 19€ there is just no interest in planning or solving it differently."* (SU3, personal communication, July 01, 2015)

The profit orientation of the supply side

The economy, including the airline industry, was described as profit-driven. This was defined as an obstacle to sustainable development in the tourism industry as it was recognized that the environment was the basis for profits. The following example illustrates this.

> *"This entire globalization issue that we have is capital-driven and as long as benefits can be derived from the environment nothing will change. It would need to work to give the environment a value that everyone who takes a part of the environment would need to pay something back."* (SU9, personal communication, July 07, 2015)

Doubts were articulated in regards to the interest of the supply side to change something as long as profits were made from increased passenger numbers.

> *"The economy, the profit, steers the society. And that part that is steering it will only then change something when its profit is not working anymore. […] The economic interests kill everything else."* (SU9, personal communication, July 07, 2015)

4.8.1.2 Political Issues: Interest in Overall Consensus and Development

Study participants mentioned the need for some public consensus as a precondition for political intervention while at the same time it was stated that taxes are as well sometimes introduced despite the reluctance of the public and the economy to accept them. Another issue was acknowledged as being the governmental fuel subsidies for airline fuel.

> *"That would be the first thing to do… to eliminate the subsidies. It's not possible that we are still subsidizing that."* (SU3, personal communication, July 01, 2015)

The existing restrictions directed at the airline industry were described as not being felt by the consumer in a way that it inhibits travel behavior in a significant manner.

> *"The existing restrictions are almost not relevant for the people. None of those things are things that would discourage the majority of people from traveling or other things."* (SU6, personal communication, July 03, 2015)

4.8.2 Possibilities for Internal and External Interventions

In the light of the reluctance to voluntary behavior change as well as the issues that are faced in the move towards more environmentally acceptable air travel behavior as according to the study participants, ideas or suggestions for possible interventions initiated by the demand side; and possible political interventions, have been generated by study participants.

4.8.2.1 Demand Side: Suggestions for More Sustainable Travel Decision Making

Rethinking the purpose of holiday and hence rethinking the choice of destination was suggested as being one possible approach to triggering consumer behavior change despite general reluctance and expected reluctance to voluntary behavior change.

Study participants mentioned as well that all change can come from individual efforts on the consumer level.

Rethink the purpose of holiday

It was suggested that the purpose of the holiday is put into question before taking a flight to go to some place. Study participants acknowledged that going somewhere by air only because it is affordable, warm and there is yummy food, was problematic in the light of their personal environmental attitudes.

> *"I think it always depends on why people go on holiday. If the people just want to go to a nice country, where it's nice, where it's warm and where they can have nice food then they can also take the train to Spain."* (SU4, personal communication, July 02, 2015)

> *"Everyone says, "we can afford it so we are going there". I don't think that is right. Only because you can afford you go there. But rather if I really want to see something because it's my dearest wish, then yes; but other than that it can also be thought over."* (SU5, personal communication, July 02, 2015)

Study participants suggested that people think about the actual reasons they have for going to a specific destination. If it is for something they cannot get anywhere else then it was found to be OK. However, emphasize was put on at least spending a thought on one's actual purpose.

"I do think that it would be important sometimes that people ask themselves in that moment, what they are actually doing it for." (SU3, personal communication, July 01, 2015)

Small steps are important as well

Study participants recognized that even small steps can be valuable and that, *"everyone can set an example with their own behavior"* (SU9, personal communication, July 07, 2015). Change can be initiated by small, individual behavior that eventually might lead to a bigger movement within the population just as it happened with the nuclear power revolution in Germany, where nuclear power stations were eventually put out of service after many years of protests.

It was regarded as important for people to play their role in initiating change, *"as it is first of all our task to get the government to do something"* (SU3, personal communication, July 01, 2015). Small steps are essential as it is at least better than doing nothing and it might eventually be successful.

"Many a little makes a mickle! […] That's why it might come to the wider population's mind… "it can't go on like this"." (SU9, personal communication, July 07, 2015)

It was pointed out that it might be better and more goal oriented *"if many people react a little bit instead of having few people react extreme"* (SU5, personal communication, July 02, 2015).

"If you are against animal husbandry… becoming vegetarian is not the answer for me. But rather if one succeeds in eating more consciously with a conscious, and restrained and reasonable shopping… and with that in principle finds people; finds imitators. That you say, "oh that is not that extreme, I can do that as well". That makes more sense than becoming a rigorous vegetarian and then basically draw a line… here the vegetarians, there the meat eaters." (SU5, personal communication, July 02, 2015)

4.8.2.2 Politics: Suggestions for Political Interventions

Air travel was accepted as being too cheap which is to some extent stimulating demand as can be seen from study participants' argumentations for participating in air travel due to the cheap fares (see Chapter 4.3). As study participants acknowledged that waiting for voluntary behavior change was not effective, and as air travel was generally perceived as too cheap, it was suggested that, *"people can only be controlled through their wallet"* (SU5, personal communication, July 02, 2015).

Levying higher or other taxes on the airline industry was regarded as one mean to increase prices which might in the end lead to reduced consumer demand for air travel.

"If you want that people change their flying behavior, then you have to make flying more expensive." (SU5, personal communication, July 02, 2015)

The importance of introducing measures that are adapted to the environmental and not to the industrial or economic needs was also underlined. This can be related to airline's profit orientation, as the following example shows.

> *"Well, I think there is a need for policies which are not aligned to the industrial- or economic needs but rather to the environmental needs. That simply the environment becomes the benchmark. And not that the airlines are still making enormous profits."* (SU11, personal communication, July 08, 2015)

5 Analysis of Main Findings

In this chapter the main findings are analyzed and presented. The structure follows in the main the same sequence as in Chapter 4, but some sections have been merged and restruc-

tured for the purpose of data analysis. This is especially true for Chapter 5.6 which presents the analysis of the found barriers to behavior change.

5.1 Travel Motivations

Besides travel motivations like getting to know new places, new people, new cultures, learning new languages or escaping daily life to get a new perspective at life, one striking travel motivation was the one of VFR. Whereas, among study participants there were few people who barely flew due to environmental reasons, visiting a family member abroad, for example in New Zealand, Australia or Ethiopia, was happily used as an 'excuse' to get on a long-haul flight. Environmental concerns did not play a role in that case as it was regarded as an exception; something that just had to be done; something that could only be done during a certain period of time as the family member was only temporarily living in that place; and something that people were just allowed to do. This is illustrated in the example below.

> *"[…] and we are going to fly for the second time to Ethiopia, because her [his girlfriend's] daughter works there. Then you just have to go there."* (SU9, personal communication, July 07, 2015)

This finding can be compared to what Urry (2002; 2010) has argued. He acknowledged that people in modern societies are developing bigger and more dispersed networks which, in order to keep functioning, need to be cared for (Urry, 2002; 2010). This is done through travelling; through travelling to visit those people within the network in person. "Mobile societies" (Urry, 2002, p. 262) is what he calls these modern developments where travelling is induced through the dispersion of networks, mainly due to the increased accessibility and opportunities that are created through globalization and hence, the increased choices that the "rich North" (Urry, 2010, p. 90) can nowadays choose from.

In the light of increasing competition in the airline industry and the development of LCCs, Graham and Shaw (2008) argued that VFR has become more desirable as it has become cheaper, faster and easier overall to do so. Hence, as the findings show, VFR has on hand become a desirable need for modern societies with more dispersed networks to keep in touch with and on the other hand it has just become easier, cheaper and faster to maintain these network ties.

5.2 Main Criteria for Air Travel Decisions

The main criteria for air travel for shorter-haul flights in particular were described as the time that is saved by travelling by air, the cheaper price of air travel in comparison to other means transport and the convenience, also in comparison to longer, more tiring car-, train- or ferry travel.

In many cases the decision to fly was made on the basis of a combination of the two criteria, time and costs. Time was described as being rare and travelling by other means of transport would just take up too much time, meaning in the most cases that time from work would need to be taken off. Other means of transport were at the same time described as being much more expensive than the flight. A trade-off was in most cases made between costs, price and one's environmental attitudes. This compromise is illustrated by the following example.

> *"Uff, yes… compromise. You do think about it yeah… but then you tell yourself it would actually be better without going by plane but it's just connected to numerous serious disadvantages. And then you think it's actually not worth the trouble."* (SU1, personal communication, June 29, 2015)

This combination of time and money can be explained by what Chin (2002) has argued about the benefits of flying that attract air travel demand. He argued that,

> the demand for air travel is a function of the generalized cost of travel, that is, fare and time spent on utilizing the services. A carrier will attract passengers if it can offer a noticeable reduction in the elapsed time. This consists of (a) airport access time, (b) flight time, (c) waiting time and (d) boarding time (Chin, 2002, p. 55).

These findings are also in line with what Donaghy et al. (2004) argued; namely that mobility is to a great extent motivated by price. As the findings show, the low fares for air travel in comparison to prices of alternative transport, made study participants choose air travel over other means of transport. This was done despite pro-environmental attitudes as air travel was considered the cheapest and fastest option.

This illustrates the dilemma that many people found themselves in: on one hand, a lack of time and a lack of alternatives that can compete with the low prices of air travel, and on the other hand the pro-environmental attitudes they were holding, which in the end were compromised for the attractive solution of fast travel time and low cost that was offered to them by airlines.

5.3 Awareness of Air Travel's Contribution to Climate Change

The findings have shown that whereas none of the study participants knew exact details about the impact of air traffic on global climate change, all of the participants agreed that flying contributes to some extent to climate change.

This is in line with what Juvan and Dolnicar (2014) found in their study. They found that people that were holding pro-environmental attitudes and were behaving in an environmentally friendly way in domestic spaces were pretty well aware of the fact that tourism has

negative consequences for the environment. However, as found in the present study as well, they observed that people had no particular knowledge about the extent to which for example flying was actually negatively impacting the environment and the climate in particular. The findings of this study are hence in line with Juvan and Dolnicar's (2014) findings which also suggest a general awareness with the simultaneous lack of particular knowledge.

In terms of information sources that people retrieve their information from, a review conducted by Gössling and Peeters (2007) about information sources for the environmental impacts of air traffic found, that media representations and actual facts differ in many instances greatly. Information is in the main written from a certain perspective and with a distinct intention (Gössling & Peeters, 2007). In the following example it is illustrated how people may gain a false impression of the actual impacts by being confronted with biased information from the part of the industry.

> *"I'm always reading the brochures on the plane and I realize how much fuel the thing is using per person. And I'm always happy when it is relatively little. Especially on my flight to Finland there it was a similar value as of a car. Then I thought, "weeeell that's not that bad. If you'd gone alone by car it would have been worse!"."* (SU1, personal communication, June 29, 2015)

As evidenced by the above example, consumers may receive information that is written from the perspective of the aviation industry and which talks about fuel efficiency or other sustainable developments of the aviation industry (Gössling & Peeters, 2007).

According to O'Conner et al. (1999), awareness and knowledge are connected to behavior. This implies that the type of information a person is receiving influences the knowledge and awareness level and subsequently the behavior (O'Conner et al., 1999). Due to the amount and type of information people are receiving (Gössling & Peeters, 2007), it is, also in reference to the above quote, not surprising that in terms of the environmental impacts of flying, knowledge and awareness differ among people, which has an effect on their behavior or the likelihood of behavior change (Becken, 2007). Gössling and Peeters (2007) as well as Hoffmann (2010) acknowledge in this light that biased information, such as information from the aviation industry, is greatly influencing people's willingness to change their behavior. As the example above shows, the airline industry provides consumers with the impression that technological advances are making air travel more sustainable which, as Gössling et al. (2010) argue, has the potential to distort consumers' opinions about the necessity of behavior change on their part.

5.4 Likelihood of Voluntary Air Travel Behavior Change

In regards to the likelihood of voluntary behavior change, the findings of this study have revealed that study participants were commonly not willing to change their flying behavior. It was primarily argued that air travel was already limited anyway and that they were willing

to maintain their environmental impact as low as possible but that foregoing air travel was not an option to be considered.

The reasons people had for not changing their travel behavior in spite of their pro-environmental attitudes are analyzed in greater detail in Chapter 5.6.

The general opinion regarding public behavior change was that, *"no one will voluntarily take a step back."* (SU11, personal communication, July 08, 2015)

The general issues with voluntary behavior change

With the options that are offered to the consumer today, as for example low prices for air-fares, higher accessibility through air travel, faster travel time, or higher convenience levels, study participants commonly didn't believe that voluntary behavior change could come about soon. Rather it was called for external interventions, like the levying of higher taxes on aircraft fuels.

These findings are in line with what Cohen et al. (2013) found: their findings suggest that wide reaching voluntary behavior change will only come about by external interventions.

5.5 Voluntary Carbon Offsetting: The Easy Way Out

The findings revealed that many study participants liked the idea of VCO. Whereas it was acknowledged that sometimes it might actually be *"window dressing"* (SU6, personal communication, July 03, 2015) many participants were offsetting their carbon when flying.

As the following example clearly shows, carbon offsetting schemes may easily be used to just ease one's guilty conscious.

> *"I just try to compensate the CO_2 amount through AtmosFair [German VCO scheme]. I'm always doing that very dutifully. […] Yes, I do have a bad feeling. Well, but for that, there is AtmosFair!"* (SU9, personal communication, July 07, 2015)

A loud laugh after this comment showed that the participant was well aware that ticking a box when booking a flight would realistically not solve all his sorrows. However, offsetting one's carbon was regarded as a good way to ease one's guilty conscious.

The findings are in line with what other researchers (Barr et al., 2010; Cohen et al., 2013; Hares et al., 2010; Randles & Mander, 2009) found as well. They found that people who were most mindful of the environment did not deny the impact of flying on climate change (see Chapter 5.3) but were at the same time not willing to change their flying behavior significantly either (see Chapter 5.4). In this sense, Randles and Mander (2009) found that these people were, however, rather willing to offset their carbon to relieve their guilty conscious. In this light, VCO schemes have been described as giving consumers an easy way

out of the tension they may be experiencing between their flying behavior and their actual attitudes in regards to environmental protection (Colwell, 2007). The findings of this study, in addition to the findings of previous studies, point to a broader issue that Whitmarsh et al. (2011) already pointed out. The authors stated that if people are already not motivated to change their behavior, they won't be motivated to do so either as long as they are given the possibility to offset their carbon through VCO schemes. Rather, these tools enable people to continue their destructive behavior with a clearer conscious (Whitmarsh et al., 2011) but they do not allow people to become more environmentally friendly (Geiling, 2014). Hence, these measures have been criticized for inhibiting consumer behavior change in spite of the need for such change (IPPC, 2007).

Not only do these tools not encourage consumers to change their behavior but neither is anything done to actually reduce the amount of emissions from aviation (Gössling et al., 2007).

There were few people who neglected the VCO schemes as they were described as lacking "*confidence and the transparence"* (SU4, personal communication, July 02, 2015). This finding is also in line with what Burns and Bibbings (2009) and Mair (2011) found. The researchers found as well that people regarded those schemes to be lacking transparence and that they were, hence, lacking confidence in them.

So there is obviously an issue with these carbon offsetting schemes. They can be easily used by people to relieve their guilty conscious but at the same time these schemes are lacking transparence and might in the end not serve what they promote. Additionally, the lacking transparence may also be keeping people off from actually feeling confidence in the schemes which might encourage them to neglect this opportunity at all.

5.6 The Barriers to Voluntary Behavior Change

As for the purpose of outlining the findings in Chapter 4.7, the reasons, study participants gave for travelling by air despite their articulated pro-environmental attitudes and behavior in their domestic spaces, were grouped into seven groups of reasons. However, for analysis purposes, groups have been rearranged according to the specific believes that were used by study participants to balance the experienced cognitive dissonance. These beliefs were likely articulated to help them re-establish cognitive consonance. The groups were created in reference to the groups Juvan and Dolnicar (2014) created in their study which also used cognitive dissonance theory as a basis for the analysis of barriers to voluntary behavior change. As this study (i.e. Juvan & Dolnicar, 2014) was found to be the only one that used this theory as a basis in this particular field of research, the groups of beliefs were adapted from their study and modified for the findings and purpose of the present study.

Cognitive dissonance experience among study participants

The gap between attitude and behavior was differently pronounced among study participants. Nevertheless, only one participant had barely ever taken the plane due to environmental reasons, but mostly due to the lack of interest in long-haul travel in general. All others were found to having experienced a tension between attitudes and behavior at least once before, which was likely a feeling of cognitive dissonance. Some of the study participants explicitly stated that they were aware that their attitudes did not align with their behavior, as the following examples show.

> *"I'm aware of the area of tension. In so far I know that it is partly not appropriate."* (SU4, personal communication, July 02, 2015)

> *"Yeah yes… I know that this is a bit contradictory… but ehm…"* (SU10, personal communication, July 07, 2015)

> *"Hmmm… that's a difficult question [whether she would be willing to change her travel behavior]. Can't other people do that??? Ehm yes… actually one would need to, if one… "practice what you preach"… yes."* (SU11, personal communication, July 08, 2015)

Many study participants started stumbling and were obviously feeling discomfort. Small laughter, while they were trying to find the right words, was also commonly observed. Voices got softer and some would, after having given an argument to re-establish consonance, be a bit confused, offended and feel a bit denounced. This is in line with Sweeney et al. (2000) explanation of how people experience cognitive dissonance: they contended that people who experience a feeling of cognitive dissonance may seem confused, anxious or insecure – just as the study participants' reactions in this study were observed.

Table 5.1 presents the four groups of beliefs, which were found to be underlying study participants' reasons for the gap between attitude and behavior. These beliefs were used by study participants to re-establish consonance between their pro-environmental attitudes and their air travel behavior.

Table 5.1 Beliefs to re-establish consonance

Group	Explanation	Beliefs
Group 1	**Compensation through Benefits**	**I'm doing more good than bad…** …to individuals (compensation by benefitting individuals) …to the society as a whole (compensation by benefitting the society)
Group 2	**Denial of Control**	**I would like to change, but…** …if not go now, when?

		…I don't have that much time …I can't afford paying a multiple amount …there are no other means to get there
Group 3	**Denial of Responsibility**	**It's not only my responsibility** Denial of personal influence: I cannot change the world alone Denial of personal responsibility: I am doing enough good
Group 4	**Downward Comparison**	**It could be worse** Intra-personal downward comparison: I could behave even worse Social downward comparison: Other people behave even worse Downward comparison at industry level: Other industries/means of transport are not any better or even worse

(adapted from Juvan & Dolnicar, 2014, p. 81)

5.6.1 Group 1: Compensation through Benefits

The first group is signified by their common argument that travelling, including air travel, is worth the negative environmental impacts it may have. The benefits of travelling to a destination outweigh the environmental concerns.

Here it was distinguished between benefits that are received only personally, so per individual (compensation by benefitting individuals) and benefits that are perceived personally as well as the society is said to benefit from one's own travels (compensation by benefitting the society).

In the case of the argument that, **"I'm doing more good than bad to individuals"**, study participants argued, in trying to re-establish consonance, that getting to know the world was very important in general and that it was, for example, part of one's education. Awareness that through gaining these benefits the environment is harmed is existent but overall the perceived benefits outweigh the costs in environmental terms.

> *"I'm aware that it is contributing to environmental pollution but I think that getting to know the world a bit better is very important."* (SU2, personal communication, June 30, 2015)

> *"I'm working in tourism… that's also why I think that it is an educational factor for me to travel a lot. That's why I wouldn't want to miss the change completely. Because it is part of life quality."* (SU11, personal communication, July 08, 2015)

In the other subgroup of, **"I'm doing more good than bad to the society as a whole"**, the belief behind the re-establishment of consonance was that by the travels of the individual the wider society is benefitting. This expressed itself on one hand, in a way that the achievements that were made through the trip, especially in regards to travels related to the environmental organization, were expected to eventually outweigh its environmental costs.

> *"I am thinking about it but in the end you have to decide what is more important for the decision in that moment. […] Well, how do I say…,"the end justifies the means"."* (SU6, personal communication, July 03, 2015)

On the other hand, reestablishment of consonance in this group was achieved by arguing that one's travels are absolutely necessary in order to keep doing as much good as one was doing in daily life, which, in the end, is benefitting the society and the environment as a whole.

> *"That means that I think I wouldn't be able to do all the work, all the voluntary work I am doing […]. I wouldn't be able to cope with all this… I need that for relaxation. That's why I'm taking the liberties to at least fly intercontinentally."* (SU4, personal communication, July 02, 2015)

5.6.2 Group 2: Denial of Control

This group of beliefs is determined by the denial mechanism of the denial of control. The beliefs that were brought forward stem from the awareness that flying is bad for the environment. Study participants were aware, that not flying or choosing other means of transportation that are more environmentally friendly, would have been the better choice based on their environmental attitudes.

In an effort to re-establish consonance, study participants had a variety reasons for their decision to fly despite their pro-environmental attitudes. These reasons were grouped into four subgroups which all served to re-establish consonance and which are all based on the denial of control.

One belief was that one has to travel now because it might not be possible at a later stage in life. Hence it was called, **"I would like to change but if I don't go now, when?"**. This belief was true for a younger study participant, who thought that travelling to long-haul destinations would be better to do before possibly becoming restricted by family foundation or by losing fitness with age.

> *"I really like to travel. I have decided to choose more distant destinations for now because I thought in regards to family formation in later years it might not be possible anymore, so I rather do it now."* (SU10, personal communication, July 07, 2015)

The belief of, **"I would like to change but if I don't go now, when?"** was also true for older people who felt like they were being restricted by the decreasing lengths of their lives.

> *"I think that will change anyway with increasing age. Now that's a bit like 'if not now, when?'… something like this, right. So, I think that's a question of age as well. As long as I can, I want to do that.* (SU2, personal communication, June 30, 2015)

> *"Maybe I have about 30 more years in which I can nicely, and in good shape, travel. I might only have about 20-25 long-distance trips left… then I have to hustle."* (SU4, personal communication, July 02, 2015)

These findings are in line with what Becken (2007) found in her study: she found that people were excusing their flying behavior by arguing that life is short and that they only had a certain amount of time for making use of the privilege of flying.

Two other beliefs that are related to the denial of control can be described as, **"I would like to change but I don't have that much time"** and, **"I would like to change but I can't afford paying a multiple amount"**. The first belief refers to the travelling time that was in most cases perceived as significantly shorter when going by plane as compared to alternative transport. The second belief refers to the price for air travel that was, besides travel time, the determining factor in making the decision to fly over other transportation.

Most of the time, these two factors were mentioned simultaneously as illustrated by the below example.

> *"Yeah, to Scotland there would have been other options to get there but then it just had time reasons because I have a job and then to take an extra day off to then take the train or something to get there… and of course flying has become so cheap by now that all other things are way more expensive."* (SU10, personal communication, July 07, 2015)

Control was pushed aside in a way that the two factors, the lack of time and the lack of money that would have been necessary to make alternative transport mode decisions, were treated as being outside of one's own control, which served as a mean to re-establish consonance.

The same can be said about the belief that was named, **"I would like to change, but there are no other means to get there"**. Whereas the idea of not going to a destination that was selected, was commonly no option, the lack of alternative transport, which was usually the case for long-haul travel or destinations that were not easily accessible, served as a belief that re-established consonance. The examples below illustrate how people 'excused' that they took the plane to some destination.

"Well that's the compromise, right. That you tell yourself that actually you are doing it with a guilty conscious but if you want to do that trip to that destination then it is just like that, that we have to fly." (SU5, personal communication, July 03, 2015)

"As I said, those trips cannot be done without a flight. […] But besides that I am trying to involve my environmental awareness a little bit." (SU2, personal communication, June 30, 2015)

In both examples, emotional dissonance, as also observed by Miller et al. (2010) in their study, was found. When experiencing emotional dissonance, people usually state that they are having a guilty conscious (Miller et al., 2010). In the first example, SU5 described that he did feel the tension between making the decision to fly and his pro-environmental attitudes which caused him to have a guilty conscious in that moment of dissonance. In the second example, a guilty conscious was not explicitly articulated but the participant tried to create a higher degree of consonance by arguing that *usually* she was trying to involve her environmental awareness.

All beliefs that were brought forward in this group of the denial of control can be related to the attribution theory which was first described by Heider (Juvan & Dolnicar, 2014). The attribution theory postulates that individual behavior can either be attributed to oneself or to external causes. In this case, where control was denied and behavior was justified by causes that were external to oneself, like the diminishing lifetime or the lack of alternative means of transport to get to a destination, it is spoken of external situational attribution (Juvan & Dolnicar, 2014).

5.6.3 Group 3: Denial of Responsibility

The beliefs in Group 3 are based on the denial of responsibility. Responsibility is suppressed by two beliefs that build on the overall belief that people have, namely **"It's not only my responsibility"**. The first belief that was found among study participants was that of, **"I cannot change the world alone"** and the second one was of, **"I am doing enough good"**.

People that presented the belief that they **"[…] cannot change the world alone"** re-established consonance by projecting the responsibility to act to other people, besides themselves. It can be assumed that they were experiencing a feeling of helplessness or powerlessness, as also found by Burns and Bibbings (2009), given that if they changed their flying behavior to be more conscious of the environment, other people would at the same time maintain their destructing behavior. This expression of individual helplessness, and reluctance to change in the light of the continued behavior of other people, is exemplified by the following two examples.

"When I think about why I fly then I do think that everyone is doing it as well and why shouldn't I be allowed now." (SU11, personal communication, July 08, 2015)

"The problem with such things is that you have to be convinced of the effectiveness and when you, as an individual in a world with crazy frequent flyers, say that you stop flying then the effect equals zero. It just doesn't have an effect. And that's a kind of an impediment. Everyone else is flying like crazy and I just say now I'm not flying anymore." (SU1, personal communication, June 29, 2015)

Holding this belief (i.e. "I cannot change the world alone") has been described as a phenomenon where people are awaiting a collective response and responsibility is transferred from the individual level, so from oneself, to others, the public level (Becken, 2007). This denial mechanism was described by Becken (2007) as collective denial where people feel helpless and powerless in regards to billions of other people who could also change their behavior at the same time. This helplessness may also play such role, as global climate change mitigation is something that people feel helpless about to tackle at the individual level (Burns & Bibbings, 2009). This would explain why in the second example above, it was repeated twice that the behavior change at an individual just doesn't have an effect.

The second belief, that was found to be behind the denial mechanism of denying ones responsibility, was that people believed that they were **"doing enough good"** (i.e. "I'm doing enough good"), especially in a home environment. This means that study participants defended their travelling behavior by arguing that they were behaving environmentally friendly in their home environments which literally made them eligible to travel by air and to *"once be a pig as well"* (SU4, personal communication, July 02, 2015).

The belief of **"doing enough good"** (i.e. "I'm doing enough good") was expressed in numerous different ways. Driving a small and natural gas car was as well mentioned as saving birds from being killed every day, eating locally produced food, foregoing the consumption of meat and behaving environmentally friendly in the destination environment. It was also generally acknowledged that enough good things were done to be able to palliate the decision to fly, as exemplified in the following example.

"I'm palliating this to me in a way that I say, "no, for that I am saving on so many other ends" […]". (SU10, personal communication, July 07, 2015).

This finding, that people present the belief that they are already doing enough good things to compensate for their flying behavior, is in line with what other researchers (Barr et al., 2010; Becken, 2007) have found in previous research. They found that people who are behaving environmentally friendly in a home environment believe that the air transport to the destination is a somewhat minor issue which can be compensated by the overall environmentally behavior in a home-, as well as in a destination environment (Barr et al., 2010; Becken, 2007). Hence, as according to the present study as well, Becken (2007) found that

the personal responsibility for making the decision to fly is denied and at the same time shifted to the home-, or as well to the destination environment as explicitly found in this study.

5.6.4 Group 4: Downward Comparison

The fourth group of beliefs finds its basis in the social comparison theory by Festinger (1954). The social comparison theory postulates that people naturally compare themselves with others to get a better picture of themselves. Characteristics are compared, as well as one's weaknesses are compared to the weaknesses of other people (Festinger, 1954). In this context, Wills (1981) elaborated on a certain aspect of the theory, called downward comparison. That is basically the nature of the beliefs that people articulated in this group. In order to feel better about themselves, people compare themselves or their actions with inferior others. Not only do people compare themselves to others but they may as well compare themselves to their own being at a different stage (Wills, 1981).

The first belief that people had while trying to re-establish consonance was, that **"I could behave even worse"**. This can be called intra-personal downward comparison (Juvan & Dolnicar, 2014) where study participants compare their current behavior to behavior they would actually be capable of but that they are purposely not doing; in this case increased air travel behavior. The following example illustrates this.

> *"I think that I am denying myself at least one intercontinental flight a year which I could actually afford. Due to environmental reasons! Then I'm thinking that is just too bold. I can just not do that. Not because of myself and not because of all my colleagues."* (SU4, personal communication, July 02, 2015)

This example shows that one's behavior at the moment was compared with possibly even worse air travel behavior which lets the participant feel better about the current frequency of air travel, as it is postulated by downward comparison (Wills, 1981).

The next belief is based on social downward comparison where people compare their behavior in regards to the environment in general and to air travel in specific, to the behavior of others, which is regarded as worse than the own behavior. So this belief is called, **"other people behave even worse"**.

As outlined in the findings, study participants compared their own air travel behavior to the air travel behavior of others; they compared the type and purpose of their own holiday with the type and purpose of holiday of others; and they compared their holidaying lengths with the lengths of holiday of others. In all cases, the own behavior was put in stark contrast to the behavior of others, which was regarded as worse than the own behavior. The following examples illustrate some of these arguments in the above mentioned order.

"Generally the positive feeling is dominating… that you say it's a good idea to do it that way now and then you are observing everyone else around you… and yes, when I have a look around and see how

often other people fly, then I think I am still within the green range." (SU1, personal communication, June 29, 2015)

"No, so travelling I think is a very important thing and the kind of travelling… you can also travel and stay at a hotel and fill your stomachs. […] That's maybe the other side of travelling" (SU2, personal communication, June 30, 2015)

"I would not fly for one week to the US. Or some other place… intercontinentally. Well no, if you fly then you make something big out of it… a bigger journey… a longer journey… so it is actually worth it and that the impact on the environment has actually ***payed off.*** *Well, that you don't fly long-distance for five times a year, for a week."* (SU11, personal communication, July 08, 2015)

In all three examples it is obvious that people compared their behavior to worse behavior of others which made them feel better about their own decisions (Wills, 1981). This was done in order to re-establish cognitive consonance after probably having experienced cognitive dissonance.

The third belief in this group is that, **"other industries/means of transport are not any better or even worse"**. Here, the person doesn't directly compare oneself with another person, but rather was the impact of the tourism industry generally compared to other industries which are environmentally harmful as well. Furthermore, the chosen transport mode, in this case the plane, was compared to alternative transport modes which were argued to either not be any better overall, or as having the same negative environmental impact. This kind of comparison was termed downward comparison at the industry level (Juvan & Dolnicar, 2014).

"But the tourism industry is not the only one which is harming the environment. The automobile industry and the food industry are also playing its role." (SU11, personal communication, July 08, 2015)

In this example, the tourism industry as a whole is compared to the destruction or pollution that is caused by other industries as well.

In regards to the impacts of the food industry another participant argued that the impact that all traffic has in terms of CO_2 production, is less than the CO_2 impact produced through meat production.

"I'm always saying the meat production produces more CO_2 than the entire traffic in the whole world together […]." (SU10, personal communication, July 07, 2015)

To put this comment into perspective it is worth noting that the participant earlier explained that she was vegetarian. This argument, hence, shows that travelling was regarded as not that bad in comparison to other industries. The below example shows how flying was also compared to cruise ships which were said to be big polluters as well.

> *"Yeees, and it is also known that those [cruise ships] are big polluters. I mean, then the flight is more acceptable I think… when you look at the sewage."* (SU2, personal communication, June 29, 2015)

In all cases, by arguing with the belief that other industries or transport modes are not any better or even worse, study participants tried to re-establish consonance. Hence, they tried to make themselves feel better about the choices they have made as postulated by downward comparison (Wills, 1981).

5.7 External Intervention Issues and Possibilities

In the following sections, first the issues (Chapter 5.7.1) and then the possibilities (Chapter 5.7.2) for more sustainable air travel behavior in the future from the perspective of the consumer are analyzed.

5.7.1 Issues Underlying the Call for External Interventions

This section was further divided into supply side issues and political issues. For these areas study participants expressed their opinions about what current issues are inhibiting more sustainable developments of the tourism industry.

5.7.1.1 Supply Side Issues: Interest in Increased Demand

The current prices of air travel and the profit orientation of the supply side, so in this case the aviation industry, were regarded by study participants as the major inhibitors for voluntary behavior change by the consumer.

Air travel was claimed as being too cheap which made it too tempting and too attractive for people to go by plane instead of travelling by alternative transport which in most cases was perceived as being more expensive. The temptation to travel by air in the light of cheap prices is illustrated below.

> *"I like they [the flights] are so cheap. But of course, they are too cheap. I do think that. I'm happy about it, I'm benefitting from it but they are too cheap. Defo!"* (SU4, personal communication, July 02, 2015)

> *"As long as you can buy a Ryanair ticket for 19€ there is just no interest in planning or solving it differently."* (SU3, personal communication, July 01, 2015)

This is in line with what Becken (2007) found in her study. In her study people were prompted with the question whether they perceived air travel as being too cheap. The author found that study participants were aware that air travel was, in fact, too cheap. The temptation to go by plane and don't bother taking alternative- and more sustainable transport modes, is also stimulated by the increasingly high number of LCCs which serve a growing amount of routes to prices that are highly competitive in regards to alternative transportation. The (too) low prices for air travel, as Nilsson (2009) states, encourage people to fly; often times explicitly due to the sole existence of cheap airfares as the second quotation (SU3) shows. The Civil Aviation Authority (2006) found in this regard that people fly more often over short distances, which were prior to the developments in the LCC sector covered by alternative means of transport.

In regards to the claimed problematic of the profit orientation of the industry where *"the economic interests kill everything else"* (SU9, personal communication, July 07, 2015), Graham and Shaw (2008) argue that it would be difficult to reconcile economic development with carbon reduction goals. The authors claim, that the natural aim of airlines is to generate revenues which is simultaneously stimulating demand. In terms of moving the aviation industry on a more sustainable emission pathway by including it into the EU ETS, it has been argued that not even this inclusion has had much effect on airlines in regards to developing strategies to reduce emissions (Hale & Carrington, 2012). Rather the profit orientation of the industry has led airlines to pass on the extra costs to the consumer, who in most cases does not severely feel the effect of slightly increased prices (Bartels, 2012).

5.7.1.2 Political Issues: Interest in Overall Consensus and Development

The main political issue that came up during the interviews was that of the heavy subsidizing of the German aviation industry.

> *"[…] that would be the first thing to do… to eliminate the subsidies. It's not possible that we are still subsidizing that."* (SU3, personal communication, July 01, 2015)

The tax exemption of the aircraft fuel, kerosene, from the energy tax in Germany and all of Europe, and the exemption from the value added tax for all international flights operating out of a German airport, are benefitting the aviation industry and enable them to operate at reduced costs (Green Budget Germany, 2014). The exemption from the value added tax to international destinations facilitates the aviation industry with a competitive advantage over alternative transport modes operating across German borders (Federal Environmental Agency, 2014). Hence, a political issue with sustainable developments in the aviation sector and simultaneous behavior change among consumers is that of politically creating competitive advantages for airlines in form of tax incentives. Despite that, Burns and Bibbings (2009) contend that policies that are at the same time aimed at reducing emissions, like the

EU ETS, are not deemed to be successful in the light of continued deregulations and tax incentives within the aviation industry.

5.7.2 Possibilities for Internal and External Interventions

Study participants generated ideas for possible demand side developments towards a more sustainable future of tourism. Furthermore, study participants urged political interventions that would be necessary to support the environmental protection in spite of increased air travel behavior.

5.7.2.1 Demand Side: Suggestions for More Sustainable Travel Decision Making

Suggestions that were made for the demand side were on the one hand to personally rethink the purpose of the holiday which could in the end lead to voluntary behavior change. On the other hand, it was postulated that everyone could make a small contribution to making the world a bit better.

Rethinking the purpose or the motivation of a holiday was suggested as a first step towards changing one's personal flying behavior as illustrated by the following example.

> *"I do think that it would be important sometimes that people ask themselves in that moment what they are actually doing it for."* (SU3, personal communication, July 01, 2015)

People fly more than ever before and have, according to Graham and Shaw (2008), developed ever more diverse and even new types of travelling motivations. This is according to the researchers also a matter of decreasing prices, which have made different types of holiday travel possible (Graham & Shaw, 2008). People have been found to travel by air to long-haul destinations to, for example, go shopping or just spent some time away from home, as it has solely gotten more affordable (Graham & Shaw, 2008). And as mobility is severely stimulated by price (Donaghy et al., 2004), people tend to make holiday decisions that are primarily based on prices – cheap prices.

Hence, it was suggested that people start thinking besides the matter of price about the actual motivation of their travels in order to make more environmentally mindful decisions.

5.7.2.2 Politics: Suggestions for Political Interventions

Relating to the above argumentation for a rethinking of the holiday purpose beyond the travel motivation of cheap airfares, is the suggestion to politically intervene with the aim of making air travel more expensive.

The claim that people can generally only be directed in certain directions by making things cheaper, or in the case of air travel more expensive, was made by study participants. Flying has to become more expensive in order to make people change their flying behavior.

Air travel was perceived as too cheap while it was acknowledged that cheap airfares are beneficial for consumers. As the ever reducing prices will keep stimulating and deferring demand from other transport modes, the need for price increases by levying taxes or implementing other measures was emphasized.

> *"That's why I do think that politics have to get involved. For example, levy higher taxes on aircraft fuels or I don't know what else you can do. But it has to become much more expensive and that has to be forced."* (SU4, personal communication, July 02, 2015)

The claim for increased prices was also articulated in the light of common distrust in voluntary behavior change, at the individual level as well as on the public level, as the incentives the industry is giving consumers are just too tempting for them to be willing to voluntarily change behavior.

As the comment shows, prices would need to significantly be increased in order to have an effect on consumer behavior. As demand for especially long-haul flights, has been found to be pretty price inelastic, research has also suggested that prices would need to be drastically increased. For short-haul travel a lower price increase was suggested as any price increases would require airlines to more heavily compete with alternative transport modes (Gössling et al., 2012; Tol, 2007).

A first step in the right direction, as claimed by environmental organizations, like the Friends of the Earth Germany, is the air traffic tax that was levied on all flights that are taking off from a German airport (BUND, n.d.). Even though a positive environmental effect has yet to be noted, environmental organizations, like the Friends of the Earth or the WWF, see this tax as a good starting point for a possible EU-wide harmonization of the tax (BUND, n.d.; WWF, 2012). Higher taxes on aircraft emissions, which may increase ticket prices or increase airlines' willingness to strive for less fuel intensive operation, were also suggested by authors like Dickinson et al. (2013) and Becken (2007).

6 Conclusions and Recommendations

In view of ever increasing air passenger numbers, increased mobility patterns, decreasing prices for air travel, and technological advances that are expected to be outweighed by the increase in air travel demand (Dickinson el al., 2013), the set emission reduction goals to mitigate climate change and to move towards a more sustainable emission pathway, are claimed to be incompatible with current developments (Higham et al., 2014). Hence, the need for investigating the demand side and the possibilities to stimulate voluntary behavior change among consumers was acknowledged by numerous authors (e.g. Becken, 2007; Burns & Bibbings, 2009; Dickinson et al., 2013; Gössling et al., 2012; Hall, 2013; Hares et al., 2010; Higham et al., 2014; Hoffmann, 2010). However, as research repeatedly found a gap between consumers' pro-environmental attitudes and their (environmentally destructive) travel behavior (e.g. Becken, 2007; Dickinson et al., 2013; Gössling et al., 2012; Juvan & Dolnicar, 2014), the importance for investigating the reasons and the beliefs underlying these inconsistencies has frequently been emphasized by different authors (Cohen et al., 2013; Juvan & Dolnicar, 2014).

In this light, this study sought to gain a better understanding of the attitude – behavior gap in regards to environmentally sustainable travel decision making, and especially air travel decision making. The reasons for the gap between attitude and behavior were determined as the barriers to voluntary behavior change. The exploration and the analysis of these barriers to voluntary behavior change by means of the cognitive dissonance theory as a basis for analysis, provided further insights into the beliefs underlying the reluctance to voluntary behavior change among consumers.

Generally, findings revealed a lack of specific knowledge of the level, and the kind of contribution air travel makes to global climate change. Despite missing knowledge, general awareness of the negative environmental consequences of air travel was evidenced by the findings of this study. A barrier to even considering individual behavior change was found in the biased information that consumers are confronted with. Especially information from the supply side was found to be having an effect on consumer perceptions in a way that it inhibited accurate cognition of the severity of aviation's impact on global climate change.

Air travel was acknowledged as being *too* cheap, which makes it *too* tempting and *too* attractive for people. Taking alternative transport was in many cases, despite pro-environmental attitudes, not considered as an option, as the combination of the cheapest price and the fastest travel time was most influential in making the decision to travel by air.

The perceived likelihood of public voluntary behavior change in regards to reducing air travel frequencies was deemed to be low. On the individual level, study participants neglected voluntary behavior change but were willing to take alternative action. This would happen in form of voluntarily offsetting the carbon emissions or accepting to pay higher ticket prices in case airfares were increased due to the adoption of environmental taxes. These findings echo Randles' and Mander's (2009) findings, as the authors also found that people with pro-environmental attitudes are not willing to drastically change their flying behavior but do rather agree to undertaking other measures to ease their conscious, like carbon offsetting.

Besides offsetting their carbon, study participants were holding a variety of beliefs that helped them in coping with the tension between their pro-environmental attitudes and their air travel behavior. Evidence of cognitive dissonance was found among study participants, postulating that cognitive dissonance exists in the context of making environmentally sustainable travel decisions. This was also found by Juvan and Dolnicar (2014) who also used cognitive dissonance theory as a basis for their study.

Barriers to voluntary behavior change

This study found four main barriers to voluntary behavior change with a number of supporting beliefs. One of these barriers was that air travel behavior was in some cases justi-

fied by the benefits that are either gained for the individual, or that are generated for the society as a whole. Air travel was, hence, regarded as something that could be compensated by the benefits that are brought about to the individual or to the society.

In other cases, the control about one's own decisions was denied. Control was denied in a way that flying was regarded as something that just had to be done for reasons that were outside of one's control; like for example not having the money to afford alternative, usually more expensive but more sustainable transport.

The denial of responsibility was another denial mechanism that study participants used for coping with cognitive dissonance. Responsibility was either shifted to the society as a whole, so away from the individual, or to other areas of life, like for example the home environment. The beliefs that one cannot change the world alone and that one is already doing enough other good things for the protection of the environment, so that air travel can be compensated, were beliefs that related to the denial of responsibility. The latter belief was especially salient among study participants, as all participants were environmental activists who commonly used their general environmentalism as a justification for their 'eligibility' for air travel.

Downward comparison, as originating in the social comparison theory, was specifically used by study participants to make them feel better about their own choices. The arguments, that the air travel behavior could be even worse; that others are flying even more; that alternative transport might not be any better for the environment or that other industries are causing damage to the environment as well, were all beliefs that served to enhance people's standing in the respective situation.

These findings add to existing research on the barriers to voluntary behavior change in a way that people's underlying beliefs, which are inhibiting voluntary behavior change, can be better understood. Acknowledging the existence and the meaning of these beliefs would be a first step towards introducing external interventions that aim at changing or challenging these beliefs. For example, flying was perceived as being too cheap, and hence too attractive as compared to alternative, more sustainable transport. Not being able to pay a multiple amount for alternative transport was regarded as being outside of one's control. Trying to target this belief by, for example, making alternative, and more sustainable, means of transport more attractive would be something to consider for policy makers.

Issues and possibilities for a sustainable future

The secondary objective of this study was to understand issues and possibilities for moving the air traffic sector on a more sustainable emission pathway as perceived by consumers. In this regard, the study found that individual voluntary behavior change was commonly dismissed by study participants, as well as the likelihood of public voluntary behavior change

was considered to be low. In this view, interventions on the industry and on the political level were determined as being relentless, which was also found in a study by Cohen et al. (2013). While according to study participants, the cheap price of air travel was one of the main criterion for them to decide for the flight, it was at the same time acknowledged that these 'dumping' prices are currently preventing the aviation industry from becoming more sustainable. Rather, it was argued that the profit orientation of the aviation industry is a main inhibitor for more 'sustainable growth'.

Hence, an increase in prices for air travel by, for example levying taxes on aircraft fuels would be one way to making air travel less attractive, or at the same time alternative transport more attractive in terms of price. However, as air travel has been found to be quite price inelastic (Gössling et al., 2012; Tol, 2007), significant price increases would be necessary.

According to the study's findings, voluntary change is neither going to happen any time soon on the demand side, nor on the supply side and the political level. Therefore, it was suggested that positive change could come about from small initiatives of courageous people on the demand side. By raising awareness for the urgency of climate change mitigation, small initiatives on the demand side could nudge a bigger movement triggering positive changes on all three levels.

Recommendations

As voluntary behavior change was neglected and current behavior was justified by numerous beliefs, it might be beneficial to target the origins of these beliefs in order to get people to eventually change their behavior. There are existing studies, for example by Aitken et al. (1994) that have used the detected cognitive dissonance among people as a point of intervention to trigger behavior change. Dickerson et al. (1992) found in this regard that interventions on the basis of cognitive dissonance have influenced people to change their behavior, and this especially where appropriate behavior is already supported by attitudes but only according behavior is lacking. Another argument for the value of targeting beliefs is that beliefs are only established in the course of our lives and can thus be altered (Juvan & Dolnicar, 2014).

Additionally, external interventions are needed as well to slightly 'force' people to change their behavior, as well as to get the aviation industry to change their environmentally destructive practices. This can be related back to the main title of this study, *"no one will voluntarily take a step back"*, as it was said by one study participant in reference to the tempting offerings the airline industry is providing the consumer with. Consumers are not considered to be likely to voluntarily pass on the opportunities they are given by airlines, like for ex-

ample the comparably cheap airfares. This highlights the interplay and, hence, the complexity of moving the entire sector towards more sustainable development.

Limitations and future research

This study is limited to the extent that it explored the beliefs underlying the attitude – behavior gap of environmental activists. Even though it can be assumed that these people's attitudes and behaviors can more easily be steered towards more environmentally friendly travel behavior, it is of great importance to as well research people who do not hold environmental attitudes in the first place. These people might have different beliefs underlying the attitude – behavior gap which will as well require different targeting strategies as compared to environmentally conscious people.

As the focus of this study is on people from Germany, a fairly rich country in terms of its GDP (World Bank, 2015) and one of the biggest tourism outbound markets (IPK International, 2014), it would be interesting to explore whether the same kind of barriers to voluntary behavior change exist in other nations, for example countries where air travel is an exclusive privilege of the elite.

Also it is of importance to better understand the reasons of highly mobile people for travelling excessively by air as it is evidenced that this highly mobile part of society is responsible for a great share of overall air travel emissions (Gössling et al., 2010).

Additionally, it will be important to look at ways that are most successful in reducing or deferring air travel demand. At the same time effective strategies will need to be developed to increase the willingness of airlines to reduce their emissions. At the moment consumers are on one hand enabled to easily buy their "way out of responsibility" (Colwell, 2007, para. 2) by, for example carbon offsetting schemes; on the other hand airlines are able to avoid financial burdens imposed upon them by tax increases, or market mechanisms, like the EU ETS. Hence, research will need to focus on how to target consumers and the supply side in a way that overall emissions are decreased – which is the only way to mitigate climate change in the end.

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Appendix

Appendix A1: Interview Guide English

Appendix A2: Interview Guide German

Appendix B: Audio Files of the Interviews

Appendix C: Daily Environmental Behavior

Appendix A1

Interview Guide English

Introduction

1. **Thank you for your support**
2. **Self-presentation**
    a. My studies
    b. Bonn
    c. My Master's thesis
        i. Travel behavior of people who are actively involved in environmental protection
        ii. Case study
3. **Interview procedure**
    a. Time: 30-60 minutes
    b. Different topics
    c. No right or wrong answers
    d. I am **exclusively** interested in your personal opinion
    e. I will neither evaluate nor judge
4. **Trustworthiness**
    a. Possibility of remaining completely anonymous
    b. Master's thesis can be sent via email in the beginning of August 2015
5. **Audio recording**
    a. Permission to audio record the interview

INTERVIEWEE PROFILE

Name
Age
Occupation
Highest degree

Introduction to the Interview

MEMBERSHIP IN ORGANIZATION

Goals	Possible Questions
Years	• For how many years have you been a member?
Area or responsibility	• What are your tasks/duties?
Reasons for membership	• What were the reasons for joining xxx?

DAILY BEHAVIOR

Goals	Possible Questions
Other environmentally-friendly behavior	• When it comes to your everyday routine: Do you have an eye on environmentally-friendly behavior?

TRAVEL BEHAVIOR

Goals	Possible Questions
Type of travel Destinations Behavior during travels	• Do you like travelling? • Where did you travel lately? Far away/nearby? • Always something new? Always the same? • What attracts you to travelling/is interesting for you? • How do you travel? Kind/type of travel?
Frequency of travels	• **What means of transport mode do you use?** • How often do you travel every year? Which mode of transport? Air travel?
Criteria for kind of travel/ means of transport • Role of environmental consciousness/awareness	• Think about your last **AIR** travels: Which aspects were especially important during the decision making process for air travel? o Costs, time, more possibilities by flying → Role environmental attitude? o Reasons?
Reasons for discrepancy between position/mindset and behavior • Feelings, thoughts • Justifications	• **You like to travel/ air travel – but you have a pro-environmental attitude:** • How do you feel when booking a flight? • Do you think about the environment while booking? Why not? • Have you, for this reason, ever deliberately decided against air travel? **Sacrifice?** Why?/Why not?
• Actions taken to decrease negative impact of air travel	• Or have you undertaken any actions to decrease the negative, environmental impact of your flight?
Reasons for conformity of position/ mindset and behavior	• How do you manage to project your environmental consciousness/awareness onto your travel decision?

AWARENESS OF TOURISM'S NEGATIVE INFLUENCE ON THE ENVIRONMENT

Goals	Possible Questions
Awareness neg. environmental impacts tourism Awareness neg. environmental impacts air travel climate change Suggested solution	• How do you see the connection between travel and negative, environmental impacts? • How do you see a connection between air travel and climate change? Thoughts. • Do you see any problems? • What are the main problems? • Why do you travel anyways? • What do you think could be a solution?

WILLINGNESS TO CHANGE BEHAVIOR

Goals	Possible Questions
Willingness to change something	• Do you think that changing your travel behavior could be an option in the future? Would you be willing to do something about it? o In what way? What would you change?

RESPONSIBILITY, ISSUES, POSSIBILITIES

Goals	Possible Questions
Responsibility	• Where does **responsibility** lie? • What are issues/possibilities?

Appendix A2

Interview Guide German

Einleitung

6. **Danke für Ihre Unterstützung!**
7. **Über mich**
    a. Mein Master
    b. Bonn
    c. Meine Masterarbeit
        i. Reiseverhalten von Menschen, die sich aktiv für die Umwelt engagieren
        ii. Fallstudie
8. **Interview Ablauf**
    a. 30-60 Minuten
    b. Verschiedene Themenbereiche
    c. Keine richtigen und falschen Antworten
    d. Bin **ausschließlich** an persönlicher Meinung interessiert
    e. Werde nicht bewerten oder urteilen
9. **Vertrauen**
    a. Komplett anonym bleiben ist möglich
    b. Exemplar der Masterarbeit ab 01.08.2015
10. **Aufnahme**
    a. Zustimmung zur Tonaufnahme

TEILNEHMER PROFIL

Name
Alter
Beruf
Höchster Bildungsabschluss

Einstieg in das Interview

MITGLIEDSCHAFT IN ORGANISATION

Ziele	**Mögliche Fragen**
Jahre Persönliche Aufgabenbereiche Gründe für Mitgliedschaft	• Wie viele Jahre sind Sie schon Mitglied? • Was sind Ihre Aufgaben? • Was waren die Gründe für Ihren Beitritt in xxx?

ALLTÄGLICHES VERHALTEN

Ziele	**Mögliche Fragen**
Sonstiges umweltbewusstes Verhalten	• Achten Sie in Ihrem Alltag speziell auf verschiedene Dinge in Bezug auf die Umwelt?

REISEVERHALTEN

Ziele	Mögliche Fragen
Art der Reisen Destinationen Verhalten auf Reisen	• Reisen Sie gerne? • Wohin gingen Ihre letzten Reisen? Nah/Fern? • Immer neues? Immer gleich? • Was reizt/interessiert Sie am Reisen? • Wie reisen Sie? Art der Reise.
Häufigkeit von Urlaubsreisen	• **Welche Transportmittel nehmen Sie**? • Wie häufig verreisen Sie im Jahr? Mit welchen Transportmitteln? Flugreisen?
Kriterien für Reise/ Transportmittel • Rolle von Umweltbewusstsein	• Denken Sie an Ihre letzten **FLUG**reisen: Welche Aspekte waren Ihnen am wichtigsten im konkreten Entscheidungsprozess fürs Fliegen? o Kosten, Zeit, mehr Möglichkeiten durch Fliegen → Rolle Umweltgedanke? o Vorstellung **WARUM**?
Gründe für Diskrepanzen zwischen Haltung/Einstellung und Verhalten • Gefühle, Gedanken • Rechtfertigungen	• **Sie Reisen/Fliegen gerne – sind aber sehr umweltbewusst:** • Wie fühlen Sie sich bei Flugbuchung? • Ist Ihnen der Umweltgedanke dabei auch im Kopf? Warum nicht? • Haben Sie sich schon mal bewusst aus diesem Grund gegen eine Reise/Flugreise entschieden? **VERZICHT?** Warum?/Warum nicht?
• Maßnahmen um neg. Einfluss des Fliegens zu minimieren	• Oder haben Sie vielleicht andere Dinge unternommen um die negativen Umwelteinflüsse Ihres Fluges zu minimieren?

BEWUSSTSEIN VON TOURISMUS' NEGATIVEM EINFLUSS AUF DIE UMWELT

Ziele	Mögliche Fragen
Bewusstsein neg. Umwelteinflüsse Tourismus	• Wie sehen Sie den Zusammenhang zwischen Reisen und negativen Umwelteinflüssen?
Bewusstsein neg. Umwelteinflüsse Fliegen Klimawandel	• Wie sehen Sie den Zusammenhang zwischen Fliegen und Klimawandel? Gedanken.
Lösungsvorschläge	• Sehen Sie Probleme? • Was sind die Hauptprobleme? • Warum reisen wir trotzdem? • Was wäre ihrer Meinung nach eine Lösung?

BEREITSCHAFT ETWAS ZU ÄNDERN

Ziele	Mögliche Fragen
Absichten etwas zu ändern	• Könnten Sie sich vorstellen ihr Reiseverhalten in Zukunft zu verändern? Wären Sie bereit etwas zu tun? o Inwiefern? Was möchten Sie ändern?

VERANTWORTUNG, PROBLEME, MÖGLICHKEITEN

Ziele	Mögliche Fragen
Verantwortung	• Bei wem liegt die **Verantwortung**? • Was sind Probleme/Möglichkeiten?

Appendix B

Audio Files of the Interviews

Track	File Name	Time
1	SU1_June 29, 2015	26:52
2	SU2_June 30, 2015	45:50
3	SU3_July 01, 2015	50:30
4	SU4_July 02, 2015	49:30
5	SU5_July 02, 2015	32:38
6	SU6_July 03, 2015	54:54
7	SU7_July 03, 2015	35:14
8	SU8_July 06, 2015	22:58
9	SU9_July 07, 2015	39:32
10	SU10_July 07, 2015	22:30
11	SU11_July 08, 2015	31:04

Appendix C

Daily Environmental Behavior

ID	Daily Environmental Behavior	ID	Daily Environmental Behavior
SU1	Conscious eating Grows vegetables Organic food Reduced energy consumption Conscious clothes shopping	**SU2**	Reuses things Natural gas car Grows vegetables & fruits Has chickens & bees No wasting of resources Saves electricity
SU3	No car Biking No flying Green electricity Organic food Vegetarian Part-time vegan	**SU4**	Vegetarian Reduced energy consumption
SU5	No tumble dryer Biking Reduced car travel	**SU6**	Conscious eating Reduced meat consumption Organic food Reduced waste Recycling Biking Energy saving devices
SU7	Growing own vegetables Recycling Slow car travel	**SU8**	Green electricity Recycling No car Vegetarian Eco-fair clothes Organic food
SU9	No car Conscious eating Organic food Green electricity Conscious aerating and heating	**SU10**	No plastic bags Vegetarian No car
SU11	Biking Walking Public transport Saving electricity and water Local products Seasonal products		