SUSTAINABLE TOURISM DURING AN ENERGY CRISIS

Challenges for thermal spas in the Thermen- & Vulkanland Steiermark

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Declaration of honour

"I declare on my word of honour that I have written this paper on my own and that I have not used any sources or resources other than stated and that I have marked those passages and/or ideas that were either verbally or textually extracted from sources. This also applies to drawings, sketches, graphic representations as well as to sources from the internet.
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Abstract

With the tourism industry experiencing continuous growth, it is increasingly crucial for businesses to become more sustainable. As investments in energy-saving measures are necessary for sustainable development, energy crises represent significant challenges for tourism establishments. Since thermal spas are essential to Austrian tourism, this master thesis aims to provide new insights regarding sustainable thermal tourism in the Thermen- & Vulkanland during an energy crisis. The thesis also aims to identify the touristic significance of thermal spas, explore their understanding of sustainability, and examine the sustainable measures implemented by thermal baths. Secondary data, based on a literature review, and primary data from eight in-depth interviews with experts from the (thermal) tourism industry were conducted to answer the defined research questions.

The findings underscore thermal spas' essential role in sustainable tourism during an energy crisis, particularly by attracting guests and strengthening the region's economy. Besides their economic importance and cultural preservation, thermal baths implement sustainable measures during energy crises, focused on increasing energy efficiency, improving infrastructure, and promoting collaboration with regional producers. However, raising sustainability awareness among guests and managing financial constraints during an energy crisis remain significant challenges for thermal spas in the Thermen- & Vulkanland.

The results highlight the need for further research, especially in defining sustainability and appropriate metrics for thermal tourism. Additionally, a study examining thermal spa visitors' high expectations in the context of sustainability would be precious.

Keywords: Sustainable tourism, Thermal spas, Energy crisis, Thermen- & Vulkanland

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List of Abbreviations

IP1	Interview partner 1
IP2	Interview partner 2
IP3	Interview partner 3
IP4	Interview partner 4
IP5	Interview partner 5
IP6	Interview partner 6
IP7	Interview partner 7
IP8	Interview partner 8
OECD	Organization for Economic Co-operation and Development
UNWTO	World Tourism Organization
USP	Unique selling proposition

1 Introduction

The following chapter serves as an introduction to the topic and the problem statement. Furthermore, the purpose of the study and the academic and practical relevance of the thesis are presented. In the end, the defined research questions are stated.

1.1 Background and Problem Statement

The tourism industry, one of the largest worldwide, significantly impacts the global economy. Besides its positive economic importance through job creation or infrastructure improvement, tourism is often associated with adverse environmental effects (Ahmad et al., 2022, pp. 2-3). With the ever-increasing number of tourists and rising energy consumption, climate change and global warming will continue to advance, making sustainable tourism development more important (Canh & Thanh, 2020, p. 6). The focus of sustainable tourism is on the inclusion of all involved stakeholders and the consideration of economic and environmental aspects. These aspects are reflected in the three dimensions of sustainable tourism: economic, environmental, and socio-cultural (Diallo et al., 2022, p. 2). In general, sustainable tourism is a solutional approach to compensate for the negative consequences of further tourism development (Palacios-Florencio et al., 2021, p. 992).

As investments in energy-saving and renewable technologies are essential for sustainable development, especially energy crises, in which energy prices rise sharply and investments become challenging, can be dangerous for tourism businesses (Zuk & Zuk, 2022, p. 711). Particularly in the EU, which depends on imports due to a lack of raw materials, the occurrence of an energy crisis is very likely (Kuzemko et al., 2022, p. 1). Already in September 2021, pressure on the energy supply began to increase as gas production shortages occurred, and the economy was still weakened by the COVID-19 pandemic (Vaughan, 2022, p. 18).

At the end of 2021, the EU experienced its first strongly noticeable increase in energy and gas prices due to numerous factors, such as extreme weather or the

economic recovery from the COVID-19 pandemic. The slow-onset crisis peaked after Russian troops invaded Ukraine on February 24, 2022 (Misik, 2022, pp. 1-2). As both countries are major global energy exporters, the conflict increased gas and oil prices for individuals and businesses by 50 % and 60 %, respectively (Pereira et al., 2022, pp. 285-286). Especially tourism institutions, like thermal spas, are at risk of not being able to invest in sustainable development anymore, as they already deal with great energy consumption (Pröbstl-Haider et al., 2021, p. 160).

Thermal spas belong to thermal tourism, a form of wellness tourism that stands for water-based healing with hot springs' water (Chen, Liu et al., 2013, p. 124). Wellness tourism is one of the oldest forms and already appeared in the Middle Ages, when it was considered a pilgrimage (Chen, Chang et al., 2013, p. 1095). Nowadays, the term is associated with measures like spa visits, massages, eating healthy food, or physical activities that help to switch off from daily life and positively influence one's well-being (Luo et al., 2018, p. 410). Like wellness tourism, also thermal tourism is an ancient tourism form rooted in Ancient Rome. At that time, thermal baths, built around hot springs, were already visited for health care and social reasons. The health attributes of the water were discovered through religion and rituals. While thermal water was only used for health purposes in ancient times, today, it is also used for wellness purposes. Through special treatments, such as pressure treatments or bubble baths, thermal spa visitors can enjoy the water for anti-stress and wellness purposes (Gomez Perez et al., 2019, pp. 71-75).

As the average age of the population continues to rise and the trend to promote health and well-being on vacation increases, wellness tourism is said to become the next booming tourism sector (Rodrigues et al., 2019, p. 650). Especially in Austria, one of the three leading European countries in wellness tourism, the wellness tourism sector has enormous potential (Fleischhacker, 2020; Mohr, 2022).

1.2 Purpose of the Study

The study's results, which will be obtained through a qualitative research approach, should provide new insights regarding sustainable tourism for thermal spas during an energy crisis. In addition to thermal baths' significance for regional tourism and their understanding of sustainability, the thesis will also describe what sustainable measurements thermal spas in the Thermen- & Vulkanland set and which challenges they face when trying to become more sustainable during an energy crisis. In the end, it will also be examined how thermal baths can try to overcome these challenges.

By the gained results, a contribution to the currently still minimal state of research will be made. Since thermal spas of a specific region, the Thermen- & Vulkanland, are the research focus, the findings will be of great value, especially for regional thermal tourism.

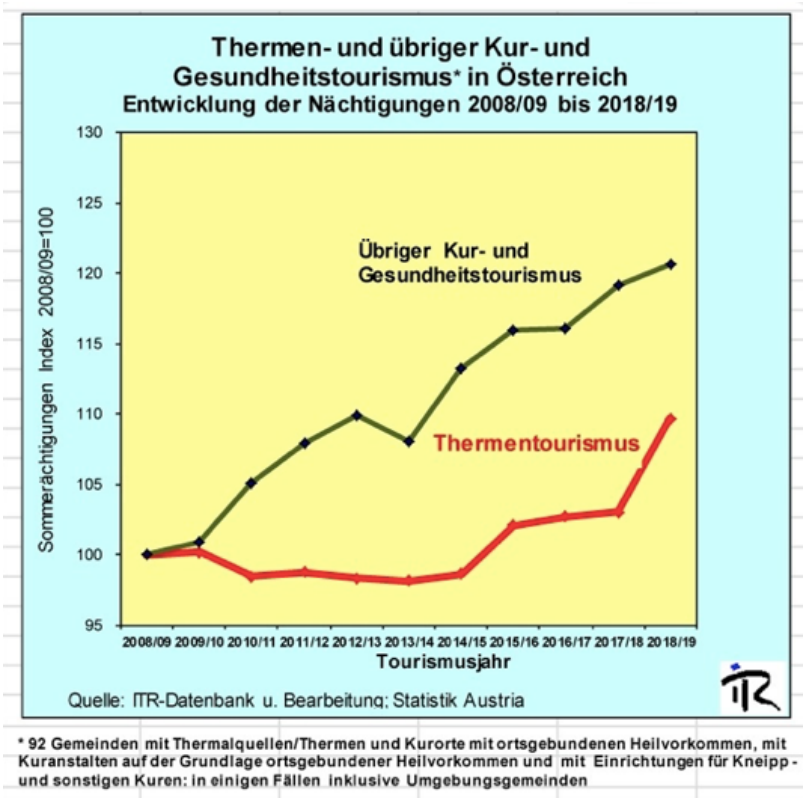
It is not this master thesis' aim to investigate the impact of the energy crisis on other tourism sectors or thermal baths in other regions. Furthermore, the research will focus on the current energy crisis, which has intensified with the outbreak of the war between Russia and Ukraine.

1.3 Academic and Practical Relevance

Thermal spas are of great importance for Austria's wellness tourism. In 2019, a revenue peak with an income of € 162.15 million from all Austrian thermal baths was reached. After the revenues developed positively again after the outbreak of the COVID-19 pandemic in 2020, revenues of € 160.63 million will be expected for 2022 (Mohr, 2022).

The development of overnight stays at Austrian thermal spas (Fleischhacker, 2020), shown in Figure 1, also underscores the topic's relevance with the forecast that thermal baths' popularity and economic growth will increase.

Figure 1: Thermal and health tourism in Austria - Development of overnight visitors 2008/09 to 2018/19



Source: Fleischhacker, 2020

Due to this and the increasing importance of sustainability, exploring Austria's wellness tourism in combination with sustainability is of great interest. To become sustainable, investing in energy-saving and renewable technologies is essential, which is difficult for businesses during an energy crisis where prices are increased (Balsalobre-Lorent & Leitao, 2020, p. 45893). At this point, it is essential to consider that research regarding the impact of the current energy crisis on tourism still needs to be made available. Nevertheless, a research gap has already been identified in previous studies, as the media mainly addresses the energy consumption of ski resorts but hardly the energy demands of thermal spas (Pröbstl-Haider et al., 2021, p. 163). As the Thermen- & Vulkanland is the oldest Austrian thermal region and was the second-most visited Styrian region in 2019, the focus will be on this area to narrow the research (*Unser Leitbild*, 2022). The gained academic and practical knowledge will contribute significantly to thermal tourism in this region.

1.4 Research Questions

The contents of the master thesis will be based on a literature review and will be complemented by results obtained by a qualitative research approach. The main research question of the master thesis is specified as follows:

What role do thermal spas play in sustainable tourism in the Thermen- & Vulkanland Steiermark during an energy crisis?

In addition to the main research question, four sub-questions that will support the empirical research conduction and answer the main research question were defined. These sub-questions are as follows:

SQ 1: What is the significance of thermal spas for tourism in the Thermen- & Vulkanland Steiermark?

SQ 2: How do thermal spas in the Thermen- & Vulkanland Steiermark understand sustainability?

SQ 3: How are thermal spas in the Thermen- & Vulkanland Steiermark trying to become more sustainable?

SQ 4: What challenges do thermal spas in the Thermen- & Vulkanland Steiermark face when trying to become more sustainable, specifically during an energy crisis?

1.5 Chapter Outline

The thesis consists of eight main chapters that are intended to give the research process a clear structure and serve as a common thread. In the first chapter, the topic under study is introduced. Also, the problem statement, the purpose of the study, its academic and practical relevance, as well as the defined research questions are explained. After the introduction, a literature review summarizes the studies examined on the thesis subject. These reviews form Chapters 2 to 5 and discuss health tourism, sustainability, and the energy crisis in the EU in more detail. Additionally, the Thermen- & Vulkanland, which is the research focus, is described more precisely. The sixth main chapter explains the methodology and the research approach used for this thesis. Furthermore, the methods used to collect and analyze

data are included in this section. The results of the empirical research process will then be presented and contrasted with earlier literature in Chapter 7. Lastly, the conclusion summarizes the thesis and provides recommendations for further research and the study's limitations.

2 Health Tourism

The following chapter defines the terms “health tourism” and “wellness tourism” before thermal tourism as a component of wellness tourism will be introduced in more detail. Also, special attention is given to the drivers and demand motives for wellness tourism, which is relevant to the thesis topic.

2.1 Definition and Components

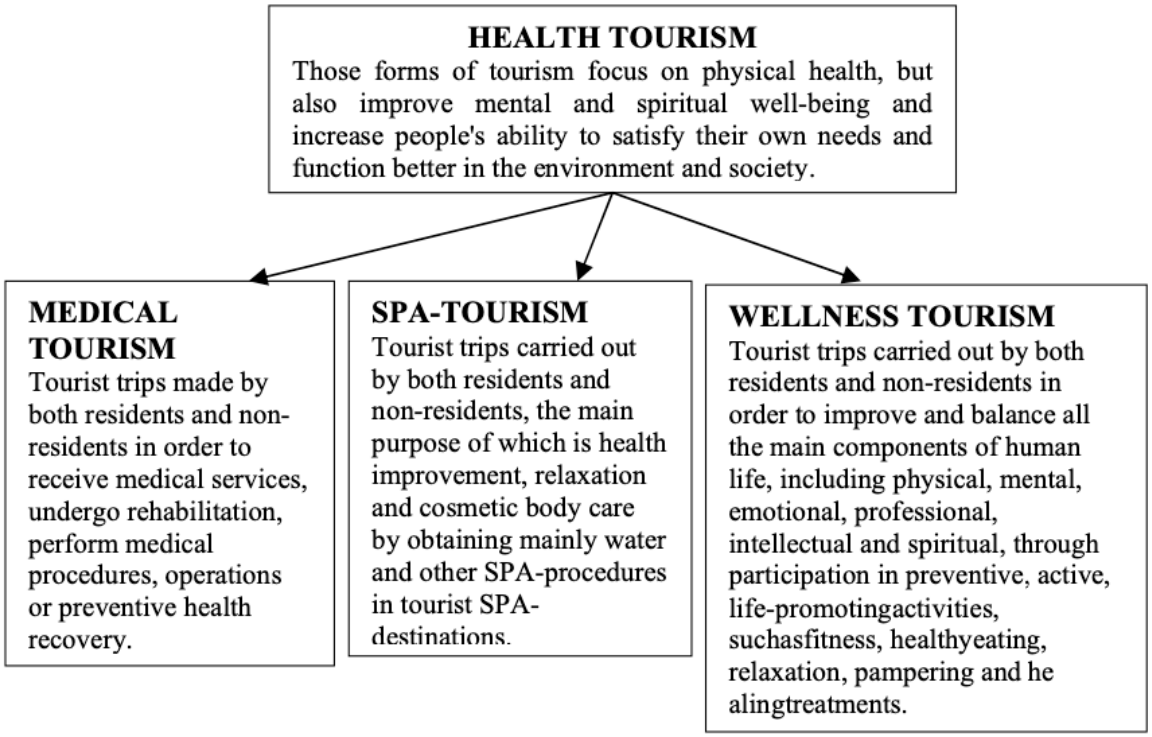
Since the times of the ancient Egyptians, Greeks, and Romans, health tourism has been a common practice. People used to travel in search of god's purported advantages, soak in spa waters, visit holy sites for spiritual healing, or use warm thermal baths that were thought to be helpful for the joints (Ridderstaat et al., 2019, p. 271). Nowadays, according to Kaspar (1996), health tourism can be defined as:

> The sum of all the relationships and phenomena resulting from a change of location and residence by people in order to promote, stabilize and, as appropriate, restore physical, mental and social well-being while using health services and for whom the place where they are staying is neither their principal nor permanent place of residence or work. (Ridderstaat et al., 2019, p. 270)

Also, Jiang et al. (2022, p. 1) addressed the term and defined health tourism as traveling that includes wellness and medical activities to improve physical and mental well-being. Seow et al. (2022, p. 377) described health tourism similarly and stated that it refers to trips intended to maintain, improve, and restore people’s physical, emotional, and spiritual well-being through medical or wellness-related activities.

Health tourism can be categorized into medical, wellness, and spa tourism. Engaging in medical tourism means receiving medical care for disease-curing issues. On the other hand, wellness tourism aims to improve, restore, or maintain one's physical or mental health. The last of the three components, spa tourism, combines healing and medical care (Mahroo et al., 2023, p. 74). Further characteristics of each tourism form are visible in Figure 2.

Figure 2: Components of health tourism



Source: Lukjanova, 2019, p. 4

2.2 Wellness Tourism

Wellness tourism is a component of health tourism and one of the oldest tourism forms, as it already appeared in the Middle Ages when it was considered a form of pilgrimage. In the 18th and 19th centuries, wellness tourism was associated with spa treatments and hot springs visits (Chen, Chang et al., 2013, p. 1095). In the 21st century, wellness tourism has gained popularity across the globe because more and more travelers see it as a viable way to combat the drawbacks of contemporary living and improve general well-being (Luo et al., 2018, p. 410).

Mueller and Kaufmann (2001) defined wellness tourism as:

> The sum of all the relationships and phenomena resulting from a journey or residence by people whose main motive is to preserve or promote their health. They stay in specialized hotels that provide appropriate professional knowledge and individual care. They require comprehensive service packages

> that include physical fitness/beauty care, nutrition/diet, relaxation/meditation, and mental activity/education. (Mueller & Kaufmann, 2001, p. 7)

According to Ridderstaat et al. (2019, p. 270), the term can also be understood as traveling to maintain, improve, and recover one's well-being in mind and body. The characteristic of wellness tourism is using specific natural resources, such as hot springs, mineral springs, the sea, or a pleasant environment, coupled with leisure amenities to create a complete service for visitors (Chen, Liu et al., 2013, p. 123). Referring to Luo et al. (2018, p. 410), wellness tourism can also be associated with spa visits, massages, healthy eating, or physical activities that help to switch off from daily life and positively influence one's well-being.

2.2.1 Thermal Tourism as a Component of Wellness Tourism

Combining hot spring resources with tourism to engage in and enjoy resource-related activities in a specific destination is known as thermal tourism (Wang & Lin, 2021, p. 3). Thermal tourism belongs to wellness tourism and stands for water-based healing with hot springs' water that focuses on cures and relaxation (Chen, Liu et al., 2013, p. 124). According to Gomez Perez et al. (2019, p. 71), water from hot springs, also known as thermal water, is rich in minerals and can differ in color, taste, and temperature.

Like wellness tourism, thermal tourism is an ancient form rooted in Ancient Rome. Back then, thermal baths built around hot springs attempted to enhance visitors' enjoyment by providing them with the water's therapeutic and health attributes, which were discovered through religion and rituals (Dini & Pencarelli, 2022, p. 401). In addition to this, thermal baths were also visited for social reasons. After the fall of the Roman empire, thermal baths began to become extinct before European monarchs rebuilt some of them (Gomez Perez et al., 2019, pp. 71-73).

Nevertheless, thermal baths and the use of thermal water for health-promoting aspects (especially for rheumatologic diseases, including osteoarthritis of the knee and hands, chronic low back pain, rheumatoid arthritis, or osteoporosis) remain until now (Valeriani et al., 2018, pp. 1-2). They are still widespread in European countries with Latin backgrounds (Migliaccio, 2018, p. 2). Generally, 95 % of the global market

can be found in Asia and Europe, whereas Europe has long been at the forefront of wellness tourism (Rodrigues et al., 2020, pp. 649-650).

Procedures offered at thermal spas can be characterized as methods that encourage contact between the guest, natural mineral water, and other complementary therapies (Rodrigues et al., 2020, p. 651). While in ancient times, thermal water was only used for health purposes, today, it is also used for wellness issues. Through special treatments, with pressure or bubble baths, guests can enjoy the water for anti-stress and wellness purposes (Gomez Perez et al., 2019, pp. 71-75). Institutions offering these treatments are wellness facilities, while traditional ones only offer naturally occurring hot spring water (Dini & Pencarelli, 2022, pp. 400-401). Additionally, thermal water is no longer the treatment's primary component since various applications like massages or cosmetics are also offered (Migliaccio, 2018, p. 2).

3 Sustainability and Sustainable Tourism

The following chapter takes a closer look at the topic of sustainability. In addition to defining the term and presenting its components, the requirements for sustainable tourism will be addressed. Since wellness tourism is essential for this thesis, sustainability in this tourism sector and its changes and challenges will be examined.

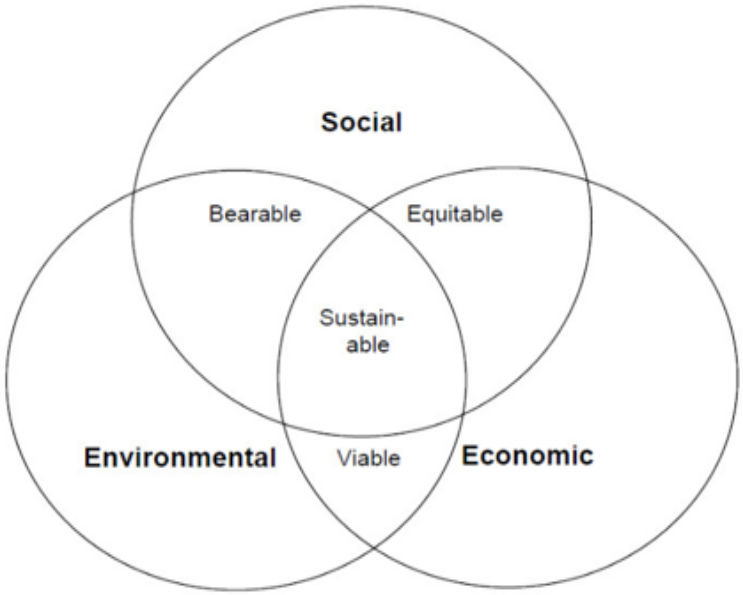
3.1 Definition and Components

3.1.1 Sustainability

Sustainability refers to a development that meets the needs of existing generations without impacting the ability of those in the future. This includes that also, in the future, people can continue to choose an individual lifestyle and satisfy their needs (Groschupp, 2022, p. 25). Also, Strasdas (2017, p. 13) referred to the term and defined sustainability as the conception of sustainable development of human existence's economic, ecological, and social dimensions.

The goal of sustainability, which originates in forestry and means cutting only as much wood as can grow back, is to balance its three dimensions, ecology, economy, and social issues (Suchanek et al., 2021). The economic dimension aims to achieve sustainable development of the economy. The focus is on maximizing benefits and increasing the gross national product. The social aspect stands for equality of opportunity and income, preservation of health and labor, and a person's right to participate in society's decisions. The ecological dimension takes a long-term view and protects natural resources. Additionally, great importance is attached to preserving the environment and its functions. For example, non-renewable resources should be avoided (Groschupp, 2022, pp. 26-27). The dimensions form the three-pillar model, also known as the triple bottom line, shown in Figure 3 (Suchanek et al., 2021).

Figure 3: Dimensions of sustainability



Source: Gupta et al., 2015, p. 100

Each dimension of the three-pillar model also interacts with the other two to create three sub-dimensions: equitable, bearable, and viable. Positive connections between society and the economy make anything equitable (such as reducing poverty, boosting living standards through equitable distribution, or allowing for a fair distribution of a region's resources among its residents). Bearability, the ability to cope with life, is increased by positive social and environmental interactions, such as society's awareness of the environmental impact. Viable is achieved by positive correlations between the environment and the economy, like economic growth or expansion, while environmental concerns are kept in mind (Agacevic & Xu, 2020, p. 5).

3.1.2 Sustainable Tourism

There is no uniform definition of sustainable tourism, as it is described differently by numerous authors. For example, Farid et al. (2016, p. 517) described the term as a form of tourism that seeks to build positive relationships and offer positive experiences for all stakeholders involved. According to Malik et al. (2016, p. 24178), sustainable tourism is a policy tool used to create economic opportunities, support

livelihood programs, and protect ecological aspects by involving locals. Hieslinga et al. (2019, p. 35) referred to the UNWTO (2005) and defined sustainable tourism in their article as: “Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities.”

As the definitions show, sustainable tourism includes all stakeholders and considers economic and environmental aspects. These are also reflected in the three dimensions of sustainable tourism, which are economic, environmental, and socio-cultural (Diallo et al., 2022, p. 2). In general, sustainable tourism solves the negative consequences of further tourism development. The three dimensions should be balanced to ensure long-term compensation for those adverse effects (Palacios-Florencio et al., 2021, p. 992).

Agacevic and Xu (2020) also considered a paper by Stoddard et al. (2012), in which a more in-depth discussion of the triple bottom line in sustainable tourism is found. While acknowledging that attempts to quantify social and environmental impacts face significant difficulties, Stoddard et al. (2012) proposed economic, social, and environmental indicators that would provide some assessment of each dimension. According to them, economic indicators include hotel occupancy rates, per-capita tourist spending and lodging revenues, tourism employees and labor income, destination economic benefits, seasonality, and poverty alleviation. The concept of social capital, tourism's social impacts on communities, and belonging to the local area are linked with social indicators. Stoddard et al. (2012) also addressed many environmental indicators that track energy consumption, water use, greenhouse gas emissions, and ecological footprints (Agacevic & Xu, 2020, p. 5).

3.2 Requirements for Sustainable Tourism

As the previous chapters showed, sustainable tourism can only be achieved by striking a balance between the three sustainability components. According to Santos-Roldan et al. (2020, p. 1), sustainable tourism is built from the ground up on three pillars: environmental protection, cultural authenticity, and the viability of the local

tourism industry. The conditions that must be provided for sustainable tourism are outlined below.

Focusing on the environment, the prerequisite for sustainable tourism is protecting nature. As Shokri Garjan et al. (2023, pp. 1-2) pointed out, this can be achieved, for example, by protecting natural resources. Since tourism businesses struggle particularly with high water and energy consumption, implementing water and energy-saving measures is also essential (*How Spas Can Be Sustainable*, 2021). Additionally, investments in sustainable energy sources are recommended to preserve resources and limit tourism's environmental effects (Sofi et al., 2022, p. 964). Besides considering water and energy resources, it is also essential to account for emissions caused during transportation. Thus, tourism businesses should support environmentally friendly transport or invest in infrastructure (Schönherr et al., 2023, p. 5).

Regarding the economic component, sustainable tourism must support the economic development of a location. This includes creating jobs that have a significant role in the regional economy, cooperation with local suppliers, or using sustainably produced products from natural resources (Brandao et al., 2021, p. 4; *How Spas Can Be Sustainable*, 2021). Regarding the social dimension, sustainable tourism must respect and preserve the cultures and traditions of locals. This aspect has become increasingly important, especially concerning tourism development in recent years and its adverse effects, such as the loss of ancient cultures (Shokri Garjan et al., 2023, p. 3). To raise tourists' awareness, it is also essential to involve all stakeholders, educate travelers about sustainable tourism and train them in environmentally friendly and respectful behavior (Szromek, 2023, p. 15).

Nevertheless, the implementation of sustainable tourism is very complex. Diverging opinions in research also showed this connection. Szromek et al. (2023, p. 4) referred to Higgins-Desbiolles (2018) and Butler (1980), who argued that tourism could not be sustainable, whereas primarily Higgins-Desbiolles (2018) debated that the tourism industry always wants to grow and, therefore, differs from the sustainability goals. Also, Agacevic and Xu (2020, p. 5) stated that sustainable tourism is very difficult to implement due to its vague concept and difficulties in measuring.

Concluding from these aspects and the preconditions for sustainable tourism mentioned above, it becomes evident that implementing sustainability is more complex than described. Szromek et al. (2023) critically viewed sustainable tourism and emphasized that the attention paid to the environment by the tourism industry is still relatively low and varies significantly. Although most of their interviewed wellness tourism managers could imagine something about the ecological component, the practical knowledge for implementing sustainability often needs improvement (Szromek et al., 2023, pp. 12-13). This problem is further exacerbated by Sofi et al.'s (2022, p. 965) assertion that sustainable tourism can only be achieved through long-term actions and careful planning. If knowledge of the single sustainability components is already poor in practice, it is questionable whether tourism managers even know how sustainable tourism must be implemented.

3.3 Sustainability in Wellness Tourism

Sustainable development in the tourism industry aims to increase visitors and revenues while maintaining the destination and its activities for future generations. Although tourism businesses are not directly accountable for visitors' acts, they can still encourage people to engage in responsible behavior by participating in educational initiatives or financial ones like pricing policies. The concepts of sustainable development can also be implemented internally by the tourism industry in areas like corporate social responsibility, environmental strategies, or management systems (Szromek et al., 2023, pp. 2-4). In this way, those in charge of tourism facilities can encourage their guests to use the institution's sustainable amenities and promote sustainable consumption (Wang et al., 2021, p. 2).

According to Pröbstl-Haider et al. (2021), especially in the wellness tourism sector, facilities must deal with substantial electricity demands, mainly needed for ventilation, pumping systems, and electrical operation of sauna systems. Since indoor facilities, pools, and water for showers must be (pre-)heated all year, the heat consumption is usually higher than their actual energy consumption. To lower the energy demand, Pröbstl-Haider et al. (2021) addressed the following measurements:

- Reducing heat losses through the building envelope (e.g., ensuring a tight building envelope or high-quality insulation for windows and glazed areas)
- Consideration of the use of renewable energy sources (e.g., thermal solar systems)
- Using heat exchangers (e.g., recover heat from pool and shower wastewater and exhaust air from ventilation systems)
- Reduction of evaporative heat losses (e.g., swimming pool covers or insulation of balancing pools)
- Lowering the evaporation rate to lessen the ventilation system's dehumidification effort
- Reducing the amount of water used in sanitary facilities (e.g., two-button system for WC facilities or shower buttons with timer function)
- Adjusting water circulation rates to demand (e.g., lowering temperatures while not in use)
- Setting working hours or time controls for attractions and wellness centers (e.g., for whirlpools, saunas, bubble loungers, or waterfalls)
- Using modern-day lighting design (e.g., presence detectors in sanitary areas, daylight sensors, or LEDs)

Besides these recommendations, Pröbstl-Haider et al. (2021) also stated that some wellness facilities already sustainably use their thermal springs to generate power for whole regions. In the Thermen- & Vulkanland, which is examined in detail in this thesis, the thermal spas in Bad Blumau and Bad Waltersdorf use their thermal water for several approaches. In Bad Waltersdorf, for example, thermal water, which has a temperature of over 60 °C, is used for district heating before being used in the thermal spa for heating purposes. Through these processes, the water is cooled to approximately 38 °C and gets usable for numerous pools (Pröbstl-Haider et al., 2021, pp. 161-162).

Also, Pessot et al. (2021) examined wellness tourism and sustainability research articles and concluded that measurements that advantage environmental issues had been mainly addressed. These include, among others, the modernization of water management, implementation of sustainable water management systems,

development of strategies for sustainable use of thermal springs, or implementation of energy-saving technologies (Pessot et al., 2021, pp. 9-10). As can be seen, the focus of the research was mainly on energy and water consumption.

Despite the arguments raised by Pröbstl-Haider et al. (2021) and Pessot et al. (2021), Shokri Garjan et al. (2023) held a critical opinion regarding sustainable wellness tourism. The authors referred to research by Szromek (2021), who examined business models of spa and wellness tourism facilities concerning sustainability. The research results showed that the components of the used business models were not compatible with the principles of sustainability (Shokri Garjan et al., 2023, p. 3). However, it is unclear whether all models' components were incompatible with sustainability or if only some contributed to it, as Pröbstl-Haider et al. (2021) and Pessot et al. (2021) showed, for example, with the implementation focus on ecological measures. Concerning this issue, however, it can be assumed that most facilities focus on environmental protection, as this is what most of those responsible can imagine. This fact was also proven in a study by Szromek et al. (2023, p. 12), which showed that the environmental component was one of the three sustainability dimensions that interviewed managers understood and considered the best.

3.3.1 Chances and Challenges of Sustainable Wellness Tourism

As seen in previous chapters, the implementation of sustainable tourism is very complex. Implementing sustainable measures is also associated with opportunities and challenges, which are discussed in more detail below, specifically concerning wellness tourism.

The increasing demand for wellness tourism is a great chance for sustainable development. Due to the aging population and ever-increasing health awareness, the wellness tourism sector will gain significant importance in the coming years. In order to compensate for the adverse effects of increased tourism volume, sustainable development is becoming increasingly essential (Ridderstaat et al., 2019, p. 650).

As already addressed, sustainable tourism strengthens the regional economy. Since wellness tourism businesses are mainly found in rural areas, especially job creation and cooperation with regional suppliers contribute positively to the

economic situation (Brandao et al., 2021, p. 4; *How Spas Can Be Sustainable*, 2021). Ahmad et al. (2022, p. 2) also saw further opportunities for innovative concepts and highlighted that these could subsequently help to stand out more strongly from the market. Similarly, Szromek (2021) discussed the advantages of sustainable development concerning Polish wellness tourism businesses. Like Ahmad et al. (2022), he saw an excellent opportunity to stand out from the market through sustainable change and to positively strengthen the image of the facility and the entire region (Szromek, 2021, p. 15).

Especially the wellness tourism sector is confronted with high consumption of resources, especially in the water and energy sector. It is necessary to implement saving measures and increase efficiency to reduce water and energy amounts. As guest expectations increase steadily, it is essential that the service quality is maintained and that visitors do not notice any changes during a visit. However, implementing cost-saving measures should generally not negatively affect the guest experience of a wellness facility (*How Spas Can Be Sustainable*, 2021). Nevertheless, it should be remembered that the implementation of such measures is usually associated with high investments, which can be challenging for establishments. Consequently, as Pröbstl-Haider et al. (2021) noted, investments in energy- and water-saving measures must be well-planned. In this context, Pröbstl-Haider et al. (2021) also mentioned that wellness businesses should renew or expand every five years to remain attractive to guests. These developments are also associated with high costs and great energy consumption (Pröbstl-Haider et al., 2021, p. 160).

Among the biggest challenges in implementing sustainable wellness tourism are sustainability's complexity and the need for standards. As Hashemkhani Zolfani et al. (2015, p. 13) addressed, sustainable development is challenging for many businesses because different dimensions need to be considered. Since sustainability can only be implemented if responsible stakeholders are aware of the concept, insufficient knowledge and lack of uniform definitions can further complicate the process (Andreu et al., 2021, p. 11; Schönherr et al., 2023, p. 1). The requirement to involve all stakeholders while implementing sustainable measures is another challenge for tourism businesses because nature and the state must also be considered besides guests, employees, or residents (Szromek et al., 2023, p. 1).

4 Energy Crisis in the EU

During an energy crisis, energy prices rise sharply, making investments challenging for businesses and private households (Zuk & Zuk, 2022, p. 711). Particularly in the EU, which depends on imports due to a lack of raw materials, an energy crisis is very likely as external events can significantly impact its energy security (Kuzemko et al., 2022, p. 1). According to Misik (2022, p. 2), energy security can be understood as the constant and affordable availability of energy sources.

In 2019 Li et al. (pp. 18835-18837) stated that energy consumption will increase by 9 % from 2015 to 2040 in the 32 OECD countries to which Austria also belongs. At the end of 2021, the EU experienced its first strongly noticeable increase in energy and gas prices due to numerous factors, such as interruptions in gas production or the increasing demand because of the post-COVID-19 economy (Misik, 2022, p. 1). Within a year (from February 2021 to February 2022), gas prices increased from € 20 to € 80/MWh. Also, energy prices rose massively within this period (Osicka & Cernoch, 2022, p. 1). In addition, sufficient gas availability for winter 2021 was questioned as gas storage reached a ten-year low of 15 % below average on 1st October 2021 (Misik, 2022, p. 1).

The invasion of Ukraine by Russian troops in February 2022 had a dramatic impact on the already aggravated situation. As both countries are the two largest energy exporters worldwide, with Russia accounting for 12 %, and most amounts are exported to Europe and Asia, the conflict further increased oil, gas, and energy prices (Zhou et al., 2023, pp. 1-4). After the conflict started, the EU implemented sanctions on Russia. The EU also tried to find alternative markets for energy imports and announced plans to increase dependence on other energy sources by the end of 2022 (Pereira et al., 2022, p. 282). A first step in this direction was the publication of a new energy strategy on 8th March 2022, which stated that Russian gas and oil would be cut in the future, funding for energy efficiency will be doubled, and wind and solar energy will be extensively used. However, it is worth noting that the EU is not abandoning gas but is replacing the missing amounts with other imports, such as from Africa or the USA (Vaughan, 2022, p. 18).

Nevertheless, it must be stated that gas supply problems and cutoffs already occurred in the years before, although these were relatively infrequent and inconsequential. Also, Austria had to deal with supply problems, such as in the late 1960s or early 1970s. Despite these incidents, the EU still saw natural gas-rich Russia as a prospective partner for compensating its insufficient domestic production and for strengthening its energy relationship. The EU and Russia's Joint Declaration from the summit in October 2000 served as the foundation for what seemed to be a promising collaboration path (Sauvageot, 2020, p. 3).

Another problem during the ongoing energy crisis will be integrating renewable energies into the existing energy market infrastructure. Since renewable energy sources are essential for sustainability, but fossil fuels will continue to form the basis of the EU's energy supply, the crisis will further intensify (Kuzemko et al., 2022, p. 1). Zuk and Zuk (2022) also addressed this issue and stated that increases in energy prices could also inhibit investments in renewable energy sources, making it more difficult for companies to become more sustainable. Besides the challenges mentioned, the costs of adaptation measurements can also significantly impact the crisis (Zuk & Zuk, 2022, p. 711). According to Osicka and Cernoch (2022), Russian energy volumes must be replaced faster, and the costs will get higher if gas prices rise further. Generally, the authors considered that the risk of an economic collapse gets higher if energy and gas prices continue to rise and push more and more households into poverty (Osicka & Cernoch, 2022, pp. 1-2).

4.1 Effects of an Energy Crisis on Tourism

Tourism has grown globally due to expansions in international collaboration and transportation services. According to Aydin (2022, p. 467) and Pace (2016, p. 410), these changes have boosted the already high energy use and made the tourism industry increasingly dependent on energy. As tourism is regarded as one of the significant contributors to global warming and climate change due to the enormous quantities of CO2 emissions, the need for investments in renewable energy gets more important (Paramati et al., 2018, p. 1589).

High energy demands can be decreased in one of two ways: promoting alternatives to energy-intensive attractions or increasing the energy efficiency of tourism facilities (Becken & Simmons, 2002, p. 352). According to Huseynli (2022), energy-efficient lighting, power cords, or other gadgets can save energy in the tourism industry. The author also paid particular attention to installing renewable energy systems (Huseynli, 2022, p. 1925). Similarly, Lu et al. (2019, p. 1104) examined the potential of using renewable energy sources and stressed the energy cost-saving benefit of implementing them. According to Pace (2016, p. 410), appropriate energy technologies could save 10 to 15 % of the total energy consumption and decrease electricity costs. Also, Qureshi et al. (2017, p. 145) highlighted the positive effects of renewable energy sources and stated that tourism facilities' energy efficiency could be increased, and sustainable development could be supported. In this context, Salahodjaev et al. (2022, p. 13289) also pleaded with governments to support tourism businesses with low-interest loans, tax deductions for renewable energy investments, or the provision of subsidies to help with installation costs for renewable energy installations.

As can be seen, appropriate energy management strategies are necessary for the sustainable growth of the tourism industry (Teng et al., 2012, p. 199). Nevertheless, due to the high costs of energy-saving techniques, tourism businesses can experience difficulties regarding investments (Trung & Kumar, 2005, p. 115). These challenges can likely arise in an energy crisis, where energy prices and costs increase (Zuk & Zuk, 2022, p. 711). Nevertheless, implementing sustainable measures is especially important in times of crisis. The research results of Szromek et al. (2023, p. 2) and Andreu et al. (2021, p. 11) confirmed this assumption. While Szromek et al. (2023) focused on sustainable development during an energy crisis, Andreu et al. (2021) examined the implementation of sustainable measures during the COVID-19 crisis. However, they addressed crises in general when discussing the results.

Regarding the research of Szromek et al. (2023), it was stated that sustainable change is of even greater importance during energy crises in which energy prices increase. To see if measures are still implemented during a crisis, Szromek et al. (2023) interviewed 18 managers of Poland's most significant health and wellness enterprises. During their research, the authors found that most sustainability measures were related to water and energy management. However, only 39 % of the facilities used renewable energy sources or planned to invest in them in the future. Reasons, why the willingness of the

businesses was so low, were not given or requested by the authors (Szromek et al., 2023, pp. 13-16). One reason could be a need for more knowledge regarding implementing sustainable measures during a crisis, which was also highlighted by Schönherr et al. (2023). The authors examined sustainable tourism development during and after the COVID-19 pandemic and found a significant research and knowledge gap regarding sustainable tourism during crises. Schönherr et al. (2023) did not address how businesses can become sustainable during a crisis or deal with challenges. Nevertheless, the findings of the 24 conducted interviews with tourism organizations showed that mainly suddenly occurring crises impact the urgency of implementing sustainable measures. Schönherr et al. (2023) also assumed that awareness of the need for sustainable tourism development might decline again at the end of a crisis (Schönherr et al., 2023, pp. 2-7). This fact is particularly problematic, as sustainable tourism can only be achieved through long-term measures and requires precise planning. If the relevance for businesses decreases after a crisis, it is questionable whether sustainable tourism development can be achieved (Sofi et al., 2022, p. 965).

5 Context of Research

In this chapter, the research context of the thesis is discussed in more detail. In addition to thermal tourism in Austria and Styria, special attention is paid to thermal tourism in the Thermen- & Vulkanland, as it is the focus of the study.

5.1 Thermal Tourism in Austria

In total, 40 thermal spas are located in Austria. Except for Vorarlberg, thermal baths can be found in every federal state. The most are to be found in Styria, with nine thermal establishments, making it the largest thermal region in Austria. As shown from the distribution in Table 1, most thermal spas are based in Eastern Austria (*Thermen in Österreich und Nachbarländer*, n.d.).

Table 1: Thermal spas in Austria

Province	Number of thermal baths	Thermal spas
Styria	9	• Therme Rogner Bad Blumau • Thermenresort Loipersdorf • Parktherme Bad Radkersburg • Heiltherme Bad Waltersdorf • H_2O Kindertherme Bad Waltersdorf • Grimming Therme • Therme der Ruhe Bad Gleichenberg • Therme NOVA Köflach • Aqualux Therme Fohnsdorf
Lower Austria	7	• Therme Laa • Therme Linsberg Asia • Römertherme Baden • Sole Felsen Welt • Ybbstaler Solebad • Thermalbad Vöslau • Fischauer Thermalbad
Burgenland	5	• Reiters Thermalbad Stegersbach • AVITA Therme Bad Tatzmannsdorf • St. Martins Therme & Lodge • Heiltherme Bad Sauerbrunn • Sonnentherme Lutzmannsburg

Province	Number of thermal baths	Thermal spas
Upper Austria	5	• SPA Resort Therme Geinberg • Therme Mediterrana – Bad Hall • Salzkammergut-Therme Bad Ischl • Therme Bad Schallerbach • Gesundheitsresort Lebensquell Bad Zell
Salzburg	5	• TAUERN SPA Zell am See – Kaprun • Alpentherme Gastein • Felsentherme Bad Gastein • Erlebnis-Therme Amadé – Altenmarkt im Pongau • Heiltherme Bad Vigaun
Tyrol	5	• AQUA DOME – Tirol Therme Längenfeld • Alpentherme Ehrenberg • Erlebnistherme Zillertal • Atoll Achensee • Silvretta Therme Ischgl
Carinthia	3	• Kärnten Therme Warmbad – Villach • Thermal Römerbad – Bad Kleinkirchheim • Therme St. Kathrein – Bad Kleinkirchheim
Vienna	1	• Therme Wien

Source: Thermen in Österreich und Nachbarländer, n.d.

In general, thermal spas are an essential income factor for the Austrian wellness tourism segment. In 2019 a revenue peak with an income of € 162.15 million for all Austrian thermal baths was reached. In 2022 revenues of € 160.53 million are expected, representing a positive development after the outbreak of the COVID-19 pandemic in 2020, where only € 93.87 million were generated (Mohr, 2022).

Austrian thermal spas employ more than 6,500 people and are educational facilities for 350 apprentices. In addition, thermal baths are partner businesses of about 5,000 regional companies. With 9.53 million attracted guests in 2019, the enormous economic impact of thermal spas is further underscored (*Köstinger/Weddig/Hochhauser/Gucher: "Thermen sind Quellen der Lebensfreude"*, 2021).

5.2 Thermal Tourism in Styria

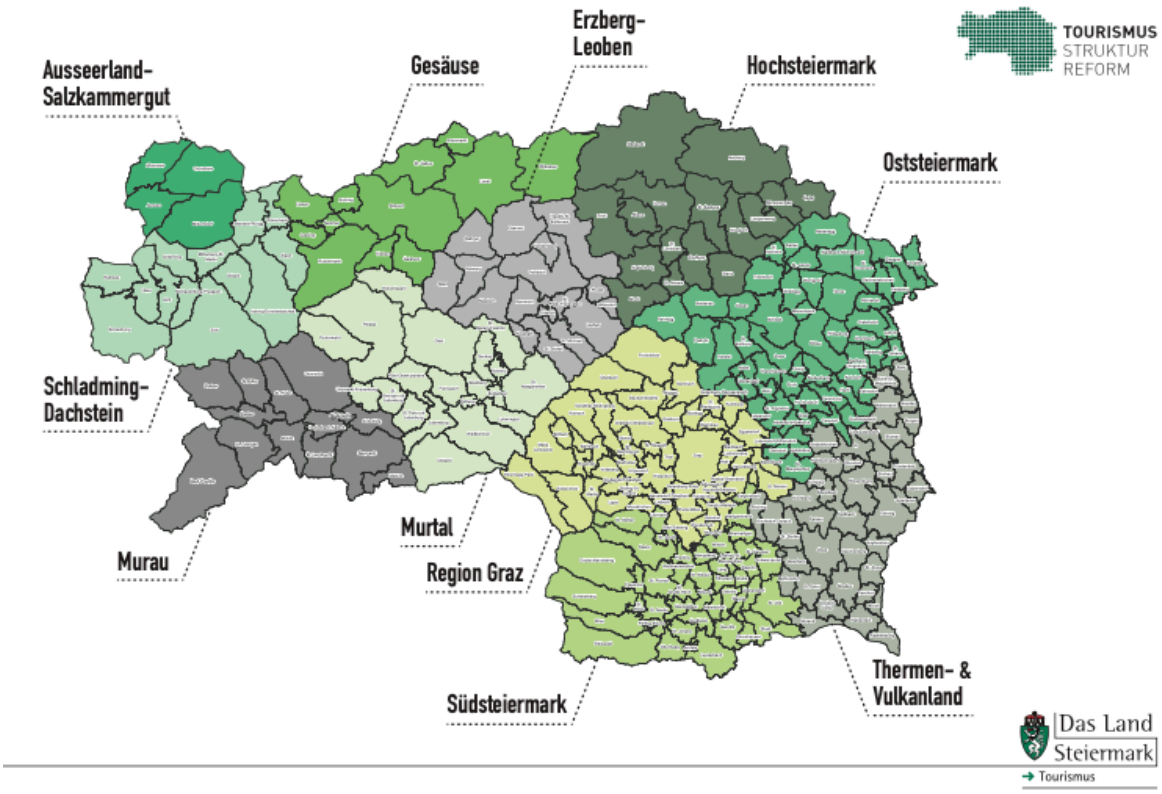
According to a survey by "Travelcircus" in 2019, Styria was, with 20.32 of 25 possible points, the best region for wellness travel in Austria. The five categories, wellness accommodation offer, wellness accommodation rating, spa resorts, thermal spa, and sauna offer, as well as rest factor, could achieve five points each (Mohr, 2019). With nine hot springs extending from Ausseerland to the Thermen- & Vulkanland, Styria offers the most thermal spas of all Austrian federal states (*Thermen in Österreich und Nachbarländer*, n.d.).

The thermal spas are the main pillars of the Styrian vacation offer by providing guests with year-round regeneration (*Urlaub in der Steiermark*, n.d.). Differentiated target groups are attracted by each thermal bath specializing in different focuses. While the Heiltherme Bad Waltersdorf or the Therme der Ruhe Bad Gleichenberg are known for their relaxing atmospheres and health focus, the H_2O Therme Bad Waltersdorf offers the perfect conditions for families with waterslides and various animation programs. Also, the Therme Rogner Bad Blumau is particularly exceptional. Due to the design by the artist Friedensreich Hundertwasser, the thermal spa is also known far beyond the borders of Austria. Its healing spring, which enables a bathing temperature of at least 37°C and a salt content of 17.6 g per liter, is unique in Styria and can be compared with the seawater from the Blue Lagoon in Iceland (Leitner, 2021).

5.3 Thermal Tourism in the Thermen- & Vulkanland Steiermark

The Thermen- & Vulkanland was formed in 2021 through a tourism structure reform, in which 60 individual tourist associations and 36 associations of several municipalities were merged into 11 tourism associations, so-called experience regions, that are represented in Figure 4 (*Der Tourismusverband*, n.d.).

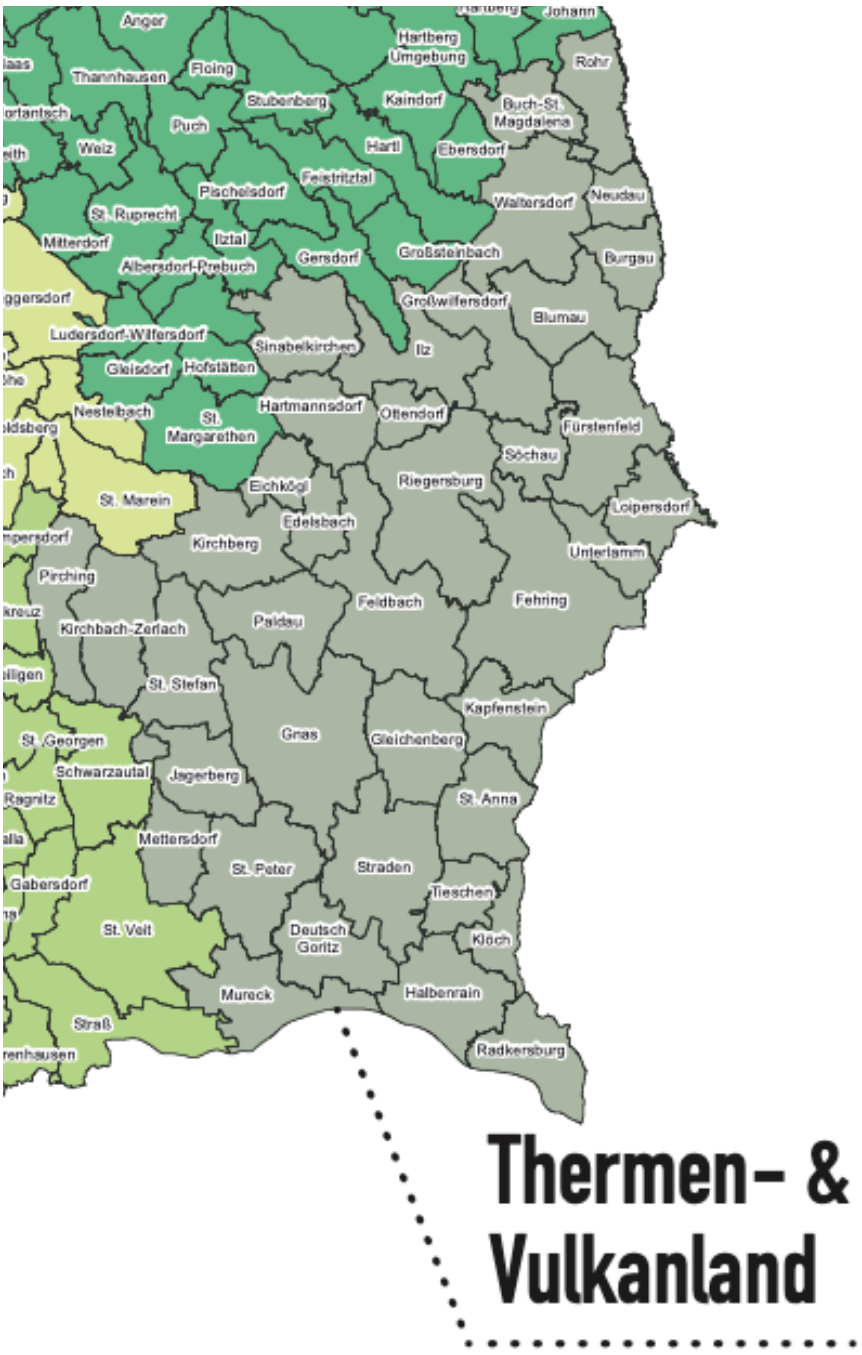
Figure 4: Styrian experience regions



Source: Land Steiermark, 2021

The Thermen- & Vulkanland, shown in detail in Figure 5, covers an area of 1,412 km^2 in southeastern Styria, Hartberg-Fürstenfeld, and Weiz. With this area and around 120,000 residents, the region is the seventh-largest Styrian adventure region (Land Steiermark, 2022, p. 3).

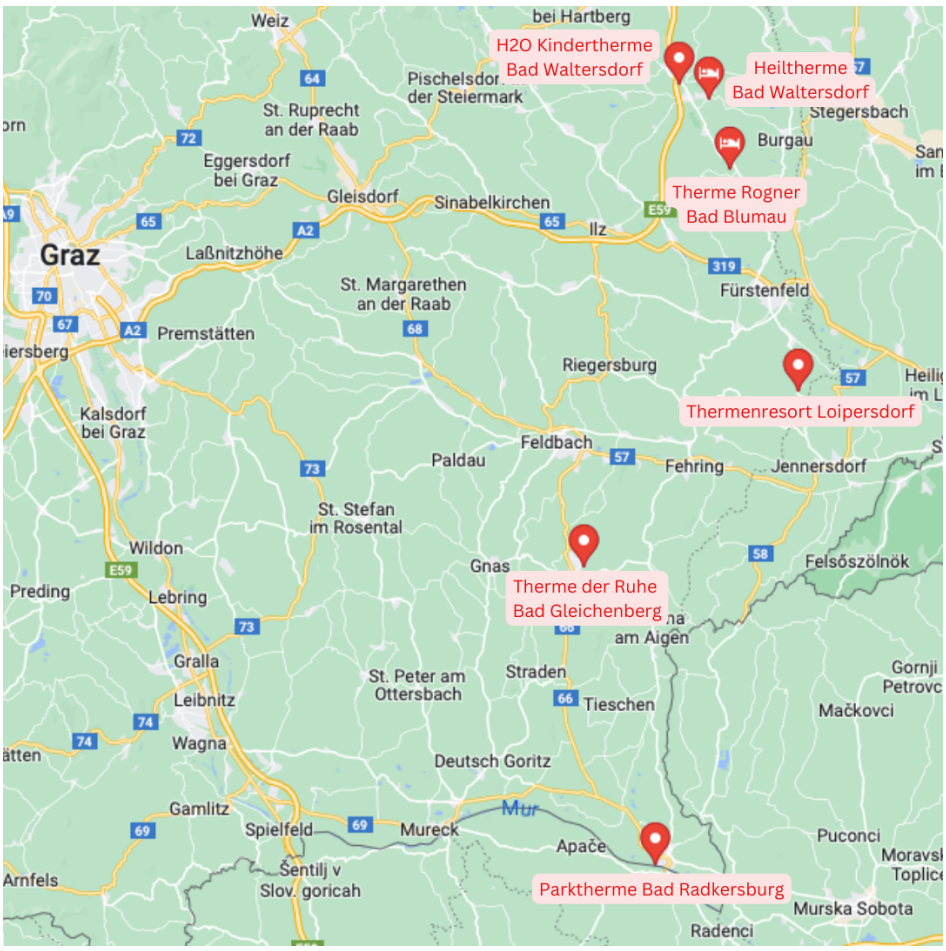
Figure 5: Thermen- & Vulkanland Steiermark



Source: Land Steiermark, 2021

Of the 39 tourism communities, Bad Radkersburg, Bad Loipersdorf, Bad Blumau, Bald Waltersdorf, and Bad Gleichenberg have the highest tourism volumes (*Das Thermen- & Vulkanland*, n.d.). In these municipalities, six of nine Styrian thermal spas, represented in Figure 6, can be found.

Figure 6: Thermal spas in the Thermen- & Vulkanland



Source: By the author

All five municipalities have thermal springs located at a depth of up to 3,000 meters that can reach temperatures until 110 degrees. Since the mineral content of the springs differs, each thermal spa specializes differently. The Parktherme Bad Radkersburg offers various activities to different target groups and is well-known for its health center and cures. The Therme der Ruhe Bad Gleichenberg also focuses on health, especially inhalations, to combat respiratory diseases. Its healing water is also used for drinking cures. Also, at the Therme Rogner Bad Blumau, which has the hottest healing spring in the region, and at the Heiltherme Bad Waltersdorf, the focus is on health and relaxation. While the Thermenresort Loipersdorf offers facilities for those seeking relaxation and families, the H_2O Therme in Bad Waltersdorf is designed only for children and families (*Steirische Thermenvielfalt*, n.d.).

Although the six thermal spas are among the most popular destinations in the region, the Thermen- & Vulkanland was long dominated by agriculture. Only Bad Gleichenberg was already known as a health resort since the 19th century. In the 1970s, thermal water was discovered during the search for oil, and the first thermal bath was built in 1978 in Loipersdorf (Land Steiermark, 2022, pp. 3-4). In the following years, the region was able to position itself more and more strongly with its various thermal spas. In 2022 over 2 million overnight stays were recorded, making the Thermen- & Vulkanland the second most visited Styrian region (*Gemeinsam Stärke zeigen*, n.d.).

6 Methodology

In this chapter, the thesis' empirical research is explained. Also, the philosophical assumptions, the qualitative design, the data collection, and the analysis are discussed. The research approach has been chosen based on the identified research problem and the targeted audience.

6.1 Philosophical Assumptions

The philosophical worldview that guided the qualitative research process of this thesis was constructivism. According to Honebein (1996), constructivism is an approach in which people build their understanding and knowledge through their own experiences. Consequently, constructivism seeks to understand phenomena from different perspectives (Dickson et al., 2016, pp. 2-5). Creswell (2013) defined the term similarly and mentioned, like Honebein (1996), that researchers who rely on constructivism are looking for different views on a given situation. Creswell (2013) also stated that reality is created by the researcher and through the participant's shared experiences. Since the researcher's role is to make sense of or interpret participants' experiences, the constructivism approach is also often described as interpretivism (Creswell, 2013, p. 25).

In constructivism, interviews, observations, and textual or visual data analysis are commonly used. Since interviews were used for data collection, emphasis was placed on the connection between constructivism and interviews. Dickson et al. (2016) discussed interviews in more detail and stated that semi-structured interviews are generally used in constructivism. Through open-ended interview questions, interviewees are given room to make their constructions and interpretations of a specific situation. During the interview, participants are encouraged to give their subjective perspectives to enable further exploration of the mentioned aspects (Dickson et al., 2016, p. 5).

6.2 Qualitative Design

For the empirical part of this thesis, a qualitative approach was chosen. The qualitative research approach does not focus on numbers but on information in the form of words, images, and sounds. Additionally, large amounts of information from small cases, such as individuals, organizations, institutions, or places, are collected (Veal, 2018, p. 43 & 135). Another important aspect of qualitative research is that the results cannot be universalized to the broader community. The research approach is designed to gain insights into the feelings and thoughts of people that experience a particular situation (Sutton & Austin, 2015, p. 226). Qualitative research methods include observations, interviews, ethnography, and other analyses, whereas interviews are the most commonly used (Veal, 2018, p. 43). Interviews aim to contribute to the existing knowledge through the interviewee's answers (DiCicco-Bloom & Crabtree, 2006, p. 314).

To gain deeper insights into thermal tourism in combination with sustainability, in-depth interviews with people from the (thermal) tourism industry were conducted. This research instrument was chosen because, according to Boyce and Neale (2006, p. 3), in-depth interviews are particularly well-suited for gathering detailed information and opinions from individuals about a specific situation. Furthermore, interviews are ideal for distinguishing between individual perspectives (DiCicco-Bloom & Crabtree, 2006, p. 315). In this case, it was also easier to compare data from different institutions and thermal spas of the region. Also, the focus on a specific region, from which only a small number of tourism and thermal representatives were interviewed, has led to the selection of this research instrument as these interviewees could provide the researcher with much more valuable data as collected with a quantitative research approach. Moreover, the opportunity to ask additional questions or request the interviewee to explain an answer in more detail spoke for the use of interviews (Veal, 2018, pp. 287-288). Additionally, interviews were chosen as it could be problematic that interview partners may feel uncomfortable in a bigger group and might want to keep their opinions private from their competitors. Also, the relaxed atmosphere of the research instrument was a decisive decision-making factor (Boyce & Neale, 2006, p. 3).

6.3 Role of the Researcher

In qualitative research, the researcher tries to access participants' thoughts and feelings. By putting themselves into the interviewees' shoes, researchers try to see the world from their angles (Sutton & Austin, 2015, pp. 226-227). Denzin and Lincoln (2013) considered qualitative researchers also as data collection instruments due to the conveyance of data through a human instrument instead of a questionnaire or a survey.

When comparing a quantitative researcher with a qualitative one, it can be stated that a quantitative researcher has more control over the research process and acts as an expert. Additionally, they can be seen as observers as they look at a phenomenon from the outside. Qualitative researchers, on the other hand, perform more as learners and actors due to their direct interaction with participants (Suzuki, 1999, pp. 42-43).

In the case of this master thesis and regarding the topic under investigation, which is characterized by great emotions and uncertainties, considerable importance had to be attached to personal as well as respectful interaction with the interview partners. Additionally, the author needed to be open-minded about new ways of seeing a problem. Also, the need to reflect on how the personal and professional background of the author could influence the research or its results had to be considered to prevent potential biases (Johnson, 2017, p. 49).

6.4 Data Collection Procedures

To collect empirical data, eight in-depth interviews were conducted. The purposive sampling technique, often used in pilot studies, intensive case studies, critical case studies, or studies of hard-to-find populations, was chosen to find interview partners (Bernard, 2006, pp. 190-191). Experts of thermal spas in the Thermen- & Vulkanland and other professionals from the (thermal) tourism industry, such as members of tourism associations and researchers in this field, were considered for the interviews, as they could provide the author with the needed information. Due to those specific characteristics and the expert knowledge required, the interview

participants were referred to as a hard-to-find population. Further information about the interviewees is presented in Table 2.

Table 2: Interview participants

Name	Gender	Profession	Workplace	Region
IP1	Male	Professor	University	Thermen- & Vulkan-land
IP2	Male	Managing director	Thermal spa	Thermen- & Vulkan-land
IP3	Female	Managing director	Thermal spa	Thermen- & Vulkan-land
IP4	Female	Authorized signatory	Thermal spa	Thermen- & Vulkan-land
IP5	Female	Chairwoman	Tourism board	Thermen- & Vulkan-land
IP6	Male	Department manager	Tourism board	Thermen- & Vulkan-land
IP7	Female	Employee	DMO	Vienna
IP8	Male	Managing director	Thermal spa	Thermen- & Vulkan-land

Source: By the author

The interviews, which only took place once with each participant individually, were conducted in German, as it was the native language of the interview partners. In this way, also potential language barriers were overcome. The interviews were semi-structured as the author aimed for better comparability and additional room for spontaneously occurring questions from the interviewees. Due to this, predetermined open-ended questions underlying a German interview guide were developed. Using an interview guide has also ensured a red threat throughout the conversations and guaranteed that the collected data would serve to answer the defined research questions (DiCicco-Bloom & Crabtree, 2006, p. 315). The selected topics for the interview guide derived from the author's literature review beforehand. Table 3 gives an overview of all conducted interviews, their location, date, and duration.

Table 3: Conducted interviews

Number	Name	Location	Date	Duration
1	Interviewee 1	Microsoft Teams	29th March, 2023	00:43:09
2	Interviewee 2	On site	3rd April, 2023	00:53:42
3	Interviewee 3	Google Meet	06th April, 2023	00:42:49
4	Interviewee 4	Google Meet	11th April, 2023	00:41:16
5	Interviewee 5	On site	12th April, 2023	00:27:39
6	Interviewee 6	On site	12th April, 2023	00:49:13
7	Interviewee 7	Google Meet	12th April, 2023	00:28:33
8	Interviewee 8	Google Meet	14th April, 2023	00:30:43

Source: By the author

Before the interviews took place, the interviewees were asked to submit their written consent. At the beginning of the interviews, the purpose of the conversations, the reasons for selecting the respondents, and the expected length of the interview was stated. In addition, the interviewees were guaranteed that their answers will be kept confidential (Boyce & Neale, 2006, p. 6). After this introduction, some general opening questions were asked to ensure a comfortable atmosphere before key questions of the interview guide were asked by the interviewer (Hennink et al., 2019, pp. 202-203). The interviews were audio recorded for transcript purposes and further analysis procedures.

6.5 Data Analysis Procedures

The analysis of the collected data started with the transcription of the interviews' recordings, in which verbal statements were converted word by word into written text. As the interviews were conducted in German, also the transcripts were in this language. If direct quotations of the interview transcripts were used in one of the thesis chapters, certain parts were translated into English. The analysis and evaluation of the collected data followed the thematic analysis approach by Braun and Clarke (2006). According to Braun and Clarke (2006), a thematic analysis helps to identify, analyze, represent, and interpret themes or patterns in data.

The approach was chosen as no underlying theory is required, it is less time-consuming than other methods, and it is adaptable to different research needs. Furthermore, thematic analysis was proven to be easily implementable for researchers who still need to gain experience in qualitative research. Another reason was the argument that thematic analysis is very well suited for identifying different perspectives and experiences of participants (Braun & Clarke, 2006; King, 2004). Additionally, similarities and differences can be more easily identified by grouping codes into themes (Nowell et al., 2017, p. 2).

The thematic analysis was carried out based on the 6-step guide of Braun and Clarke (2006). After the interview recordings were transcribed, the data was reviewed several times to identify patterns before an initial coding was done to group the raw data into meaningful groups. Following this step, the generated codes were assigned to potential topics that were colored for better recognition (Braun & Clarke, 2006).

Themes can be identified in an inductive or deductive way. As an inductive approach was chosen for this research, themes are closely related to the data collected and were coded without a pre-existing coding framework. For theme identification, a semantic approach was chosen. With this concept, themes were identified only within the data's surface meanings, and no further search was conducted. After codes with similar meanings were grouped into themes and subthemes, a map was created, allowing for easier review and refinement of the generated topics. After codes were reviewed, the author finally named the themes (Braun & Clarke, 2006).

6.6 Anticipated Ethical Issues

Ethical considerations are crucial for the research process and include issues like plagiarism, honest reporting of results, and protecting participants' privacy (Veal, 2018, p. 109). Since in-depth interviews were of great importance for the empirical data collection, it was ensured that the interviews are conducted in an ethically correct way.

In the beginning, interview participants were informed about the research purpose and how the gathered data will be used. In addition, participants were guaranteed that their data and answers will be kept confidential during the data collection and analysis process. Furthermore, it was guaranteed that gathered data will be stored securely. Collected data was only used for the thesis and was not handed over to a third party. Participants' names were replaced with pseudonyms to ensure privacy and anonymity. Furthermore, interview participants were informed that they only need to share the information they want to reveal. They also had the option to end the conversation at any point if they felt uncomfortable. Additionally, it was ensured that all participants received equal treatment and that no respondent was given a preference. Interviews were only conducted after participants voluntarily gave their written consent and agreed with the audio recording and data processing (Silverman, 2006, pp. 320-325).

For the data reporting, no information that would harm one of the participants or the institutions they work at was included. Furthermore, transcripts, recordings, and other interview materials were stored securely and will be kept after submitting the thesis. Moreover, it was ensured that the survey's results are communicated and not falsified. It was also avoided to include only positive results and address potential negative findings too (Veal, 2018, pp. 121-125).

7 Results and Discussion of Findings

The following chapter presents the empirical study's results and provides a deeper insight into sustainable thermal tourism. In the survey context, special attention was paid to the importance of thermal spas for the Thermen- & Vulkanland and how thermal baths understand sustainability. Furthermore, the measures implemented by hot springs to become more sustainable and the challenges establishments face, especially during the energy crisis, will be presented.

7.1 Significance of Thermal Spas

7.1.1 Economy

As shown in previous research, thermal spas are a vital income factor for Austria's wellness tourism sector with the potential to grow further (Fleischhacker, 2020; Mohr, 2022). Especially in Styria, where most thermal spas can be found, thermal establishments form a central pillar of the vacation offer (*Urlaub in der Steiermark*, n.d.). Due to the significant importance of thermal baths for domestic tourism, the interviewees were asked about the relevance of thermal spas for tourism, specifically in the Thermen- & Vulkanland.

The data gained showed that thermal baths in the Thermen- & Vulkanland are primarily associated with economic significance. Especially the provision of local jobs and the upswing of regional tourism by the occurrence of hot springs were emphasized by the interviewees, as can be seen from the following quotes: "We depend on the region for our existence, and the region largely depends on us because we are a significant employer." (IP2)

> Furthermore, the thermal spas in the Thermen- & Vulkanland are mainly responsible for tourism development. (...). Today, the entire village lives from tourism. We have around 330 guest beds in the village around the thermal spa. We have 70 kilometers of bike and walking paths, a huge park. We have a village restaurant, we have Buschenschänken, we have regional

> producers. We also have next generations who already live and work here because we [the thermal spa] operate with the region. (IP3)

The statements of both respondents, saying that "the region largely depends on us" and "the entire village lives from tourism," strongly emphasize the economic importance of thermal spas. As IP3 mentioned, many regional businesses focused on tourism have emerged due to the appearance of hot springs. According to IP3, also more and more young people stay in the region to live and work, highlighting the great potential of the thermal tourism sector, which was also discussed by Fleischhacker (2020). Fleischhacker (2020) highlighted that Austria belongs to the three leading European countries in wellness tourism. Furthermore, he stated that wellness tourism has a significant market potential due to being a vital income factor for Austria's health tourism. Additionally, the importance of thermal spas as employers is highlighted. In this context, an article by Österreich Werbung also pointed out that Austrian thermal baths employ more than 6,500 people and are training centers for around 350 apprentices. Additionally, the significance of thermal spas for regional producers was underlined, as approximately 5,000 regional companies cooperate with Austrian thermal baths (*Köstinger/Weddig/Hochhauser/Gucher: "Thermen sind Quellen der Lebensfreude"*, 2021). As Brandao et al. (2021, p. 4) highlighted, job creation and cooperation with local suppliers are further essential aspects concerning the economic component of sustainable tourism. In this context and from an economic point of view, the assumption that thermal spas are of great importance for sustainable tourism in the Thermen- & Vulkanland can be made.

Another aspect that goes hand in hand with the economic importance of thermal baths and was shown by the data is hot springs' reputation as the USPs of the Thermen- & Vulkanland. Due to the high competition in the tourism sector IP1 and IP4 mentioned, the six thermal spas with different specializations are seen as a clear competitive advantage for the region. This connection also becomes evident in the interview with IP6: "We compete quite strongly, of course, with southern and eastern Styria. There are stunning landscapes everywhere. There is good food everywhere. (...). However, what really sets us apart are certainly the thermal spas." (IP6)

As seen from the interview with IP6, Styria offers a diverse range of vacation options, which differ from other Austrian regions primarily in landscape and culinary. However, to significantly differentiate from other Styrian regions and position itself as unique in the tourism market, the various thermal spas are essential for the Thermen- & Vulkanland. Especially the non-seasonality and weather reliability of thermal baths, mentioned by IP5, can be seen as another competitive advantage, as visitors are attracted to the region all year round.

7.1.2 Social

The obtained data also indicated that thermal baths have a significant social role in tourism in the Thermen- & Vulkanland. Especially preventive health care was mentioned to be of great significance for locals: “(...) this social-economic aspect has always been very pronounced with us [in thermal spas], as an aspect. (...)to offer residents of the region health and leisure opportunities and secure jobs." (IP4)

In addition to reclaiming the economic importance of thermal baths and creating regional jobs, hot springs are also seen to benefit leisure patterns. How to recognize from "offer residents of the region health and leisure opportunities", it can be assumed that leisure, health, and a work-life balance are essential for today's generations. This assumption is also made by Ridderstaat et al. (2019, p. 650), who underlined the significant role of thermal spas in healthcare by stating that the world's population is increasingly aging, and they have a greater desire for health-promoting activities. Particularly the Parktherme Bad Radkersburg and the Therme der Ruhe in Bad Gleichenberg are pioneers in health and focus on healing diseases. In these two establishments, guests are offered various health-related services, primarily focused on curative purposes (*Steirische Thermenvielfalt*, n.d.). Besides promoting health, thermal baths can also be seen as leisure opportunities for locals, as IP4 mentioned. It can thus be assumed that a significant proportion of guests also spend a day in a hot spring for relaxation or to switch off from everyday life. This assumption goes hand in hand with the statement of Silvestri et al. (2017, p. 56), who determined that the purpose of relaxation is the most significant motive for a thermal spa visit and underlines the statement of Gomez Perez et al. (2019, pp. 71-75) that

nowadays thermal water is no longer used only for health purposes, but also for well-being intentions.

In addition to the health and recreational significance of thermal baths, the residents of the Thermen- & Vulkanland experience very few restrictions due to the low volume of tourists, as can be seen in the following quote:

> Now we have 550,000 guests per year in [location 3]. And that is not a small number. And the local does not notice anything about it. Nothing. (...). So, the guest comes, pays a thermal spa entrance fee, but is most of the time in the establishment. And the guest is not so extreme on the road as in southern Styria. Or even on the ski slopes. And that means the local still gets a place at a Buschenschank and can still afford everything. (IP8)

The quote shows that the interest in visiting a thermal spa has risen to several thousand per hot spring annually. Despite these tourist volumes, guests do not trigger increased traffic, and residents can still move around without problems, as the thermal spa area is limited. As Szromek et al. (2023, pp. 2-4) addressed, this form of development can be understood as sustainable tourism development, as the number of visitors and sales could be increased, but the destination itself was preserved. Referring to “Buschenschank”, which was addressed by IP8, and the information from the remaining interviews, it is also evident that despite the increasing number of tourists, the traditions and cultures of the region were preserved. As was mentioned by IP6, especially the region’s culinary aspects are very well received by guests.

7.1.3 Role model

In addition to the previous aspects, the data revealed that thermal baths have a role model function for other regional businesses in the Thermen- & Vulkanland. Especially IP6, who is employed in the regional tourism association and accordingly has insights into the happenings of thermal spas as well as in regional tourism, believed that thermal baths have taken on an enormous role model function for smaller tourism businesses and can be seen as the region’s pioneer companies. Also, IP8 addressed this and stated that thermal spas act like a “big brother” to all other regional

tourism establishments. IP6 particularly highlighted crises, like the COVID-19 pandemic, in which thermal baths' role model function became evident:

> For us [tourism board], it was just important that the thermal spas fought and kept going. They have had a hard enough time, especially with the lockdowns that followed around Easter or so, which were prime times for the thermal baths. (IP6)

The statement that thermal spas struggled during crises and kept going makes the role model function for smaller businesses very clear. In the conversation with IP3, it also became evident that thermal spas can be regarded as the "spearhead" and "pioneers" of the region and thus set the pace in the Thermen- & Vulkanland. In addition to their pioneering role, thermal spas were also regarded as flagship businesses in terms of sustainability: "Therefore, they are role models for other companies. If large thermal baths make themselves strong and continue, this also has a kind of role model effect for other businesses." (IP5)

This shows that if large thermal businesses succeed despite challenges, smaller companies are also shown to remain economically viable. Besides the influence of tourism businesses, thermal spas are also essential to influence private individuals concerning sustainable development. Thus, in the thermal establishment where IP3 works, the goal is to influence the employees' actions at home, make them more sustainable, and show which measures can be easily implemented.

7.2 Understanding Sustainability

7.2.1 Complexity

After Schönherr et al. (2023, p. 1) indicated that companies could only implement sustainability if those being responsible had sufficient knowledge about the term, the interviewees were also asked about their understanding of sustainability. The data clearly showed that respondents associate sustainability very strongly with the term complexity:

> What I understand by sustainable tourism is...that it is very broadly diversified and ranges from...really from low-impact tourism, also from the arrival, from how do I get to the destination? However, I also see tourism as sustainable, such as the [Thermal spa 4], which is already energy self-sufficient. And sustainable is also when you revitalize old buildings and make them accessible to tourism and much more. I think this is a very broad topic. (IP5)

As seen from the interview with IP5, sustainability and, subsequently, sustainable tourism are understood as pervasive terms. Based on "ranges (...) from the arrival" and "the [Thermal spa 4], which is already energy self-sufficiently", it becomes apparent that IP5 primarily connects ecological aspects with sustainability. Also, IP2 described sustainability as a "complex thing (...) that can only be partially reflected". The data clearly show that the interviewees are familiar with sustainability but that the scope of the term is challenging for them. It should be emphasized, however, that all interview participants were familiar with the three dimensions of sustainability and that knowledge of these was widespread. IP1, a university professor, even addressed a fourth sustainability dimension: "Well, you know the three pillars. However, maybe there is also a fourth pillar if you take health off the social pillar. Then you would have four pillars: the economy, the environment, health, and social." (IP1)

Nevertheless, IP1 also questioned the meaning of sustainability and stated that it is complicated for companies or even private individuals to know how sustainable one must be to be considered sustainable. Thus, the assumption can be made that there is a need for standards in practice. This assertion is also made by Andreu et al. (2021, p. 11) and Schönherr et al. (2023, p. 1), who stated that a missing uniform definition negatively affects the implementation of sustainable measures. Also, in the interview with IP8, a managing director of a thermal spa, it became apparent that sustainability in practice is perceived as "very widely spread and very difficult to measure." Agacevic and Xu (2020, p. 5) also addressed the difficulty of measurability and emphasized that sustainability, especially in tourism, is challenging to implement. Regarding the assumptions of Higgins-Desbiolles (2018) and Butler (1980) stating that tourism cannot be sustainable, no evidence could be found during the interviews.

7.2.2 Ecology

The data also showed that interviewees strongly associate sustainability with ecology. In the interviews with IP2, a managing director in one of the region's thermal spas, and IP6, who is employed in a regional tourism association, it became apparent that both respondents associate sustainability with energy. IP3 and IP4, who both work in one of the region's thermal spas, also associated the term with the environment and defined sustainability in terms of responsible use of natural resources:

> Sustainable tourism means to me that you use all your available resources and (...) I am talking about all the resources very carefully, very consciously, very resource-savingly, and optimally. Additionally, you put long-term planning on top of that. (IP3)

> But also, in the appreciation that it [sustainability] is about natural resources because these are then ultimately our offers, all of them from thermal water to healing water, [place 8], a nonetheless cultivated [place 9] belongs to it. The nature, the vineyards, the Buschenschänken - that one says, one has such a mixture of nature-related factors, which I also do not develop industrially. (IP4)

As can be seen from "use all your available resources (...) optimally" and "nature-related factors, which I also do not develop industrially", a responsible approach to nature plays an essential role in the eyes of the interviewees. In this context, IP1 mainly saw media and public pressure as the cause for the strong connection of sustainability with ecology and nature. This assumption can be related to the research findings of Szromek et al. (2023, p. 12), who indicated that ecological components are most likely to be associated with sustainability because most people can imagine it. Pessot et al. (2021, pp. 9-10) also stated that the research on sustainable wellness tourism they reviewed was mainly related to environmental measures. However, after taking a closer look at IP3's quote, it becomes apparent that by emphasizing "all the resources", also the responsible use of other reserves, such as cultures or traditions, are essential besides handling natural resources. This view is also held by IP7, who stated that "you do not just consider the ecological

perspective but have a holistic approach. This means that the focus must be on ecological criteria and the socio-cultural and economic dimensions."

Nevertheless, the interviews indicate that thermal tourism is strongly compared with other tourism forms regarding environmental sustainability. In the conversations with IP1, IP2, and IP7, it became apparent that tourism forms with high resource consumption receive more attention regarding sustainability than tourism types with lower resource use. IP1 also highlighted that thermal tourism has room for improvement regarding environmental sustainability. IP3 also addressed this issue and stated that "far too little is still being done in all the surrounding hot springs" and that there is "huge potential" in terms of sustainable development. However, IP4, IP7, and IP8 also mentioned that thermal tourism is much more sustainable than other forms of tourism, as nature is not damaged to the same extent as, for example, in alpine tourism. As can be seen, some interviewees identify a need for improvement regarding sustainable thermal tourism, while others receive hot springs as already more sustainable compared to other tourism forms. This diversity of views highlights the complexity of sustainability and the need for further research.

IP3's reference to "long-term planning" also shows that sustainable tourism should not be a short-term measure and that tourism businesses should implement long-term initiatives to achieve sustainable development. This consideration is significant for thermal spas because, as addressed by IP4, their offerings are primarily dependent on natural resources, such as healing water. Sofi et al. (2022, p. 965) also emphasized the importance of long-term planning and stated that sustainable tourism can only be achieved through long-term measures and precise planning.

7.2.3 Regionality

In addition to the other aspects, the data also showed a significant connection between sustainability and regionality, as was evident in the interview with IP2:

> For me, the concept of regionality is much more important...um is the topic of food consumption, where I say, yes, there we can do something, there we try to make sure that we buy as much as possible or according to our possibilities in the region. (IP2)

IP2 identified sustainability as a crucial aspect of sustainable tourism and emphasized particularly the regional food supply. In the thermal spa where IP2 works, regionality is thus of great importance, and efforts are made to keep the amount of imported food as low as possible. By emphasizing the "topic of food consumption," it also becomes clear that cooperation with regional producers can boost the economy in the Thermen- & Vulkanland. IP6 saw this aspect and the regional consumption behavior of guests as great strengths concerning sustainable tourism:

> There will likely not be a guest driving home who does not put something in the trunk, even if it is just a few bottles of wine or regional products they can buy here. We also notice it at the farmers' markets on Fridays, which are full of guests, which is unbelievable. (IP6)

The purchase of regional products can be seen as a support for the economy in the Thermen- & Vulkanland. Also, in the interviews with IP2, IP5, IP6, IP7 and IP8, it became apparent that the added value mainly stays in the region. Thus, in addition to a stronger connection between local businesses and tourism, more regional jobs can be created, which are, according to IP6, highly attractive for residents. Comparing these assumptions with the statement of Brandao et al. (2021, p. 4) that sustainable tourism must support the economic development of a destination by creating jobs and cooperating with regional businesses, it can be assumed that tourism in the Thermen- & Vulkanland can be considered sustainable from an economic point of view.

Nevertheless, the reference of IP2 to "buy (...) according to our possibilities in the region" shows that businesses also reach their limits regarding regional food supply since the availability depends very much on the season. In addition, the assumption can be made that the complete coverage of the demand by the region is not possible. However, the tourism businesses exhaust all possibilities to act as regionally as possible. Also, in the conversation with IP6, it became apparent that the interviewee sees the regional food supply as a "challenge" and emphasized that businesses "must be aware that tomatoes are only available at a specific time".

7.3 Sustainable Measures

7.3.1 Energy Efficiency

After respondents discussed their understanding of sustainability, they were asked about measures to promote sustainable tourism in thermal spas. The data showed that mainly measures to enhance energy efficiency were carried out in the establishments and are planned to continue:

> So, of course, we try to turn all the screws as best as we can. On one side, we have installed a photovoltaic system. We have purchased covers for the outdoor pools to be more economical there. (...). Reduced water consumption in the showers. There are exciting systems there. We have (...) developed an energy concept for our house, where all air-conditioning systems are regulated so that the guests only have a limited influence on them. In the kitchen, induction stoves have replaced the electric stoves. (IP2)

> For example, we changed all the lighting fixtures to LED fixtures to be energy efficient. We also implemented new window contacts in all rooms. That means when the radiator is warm and the guest opens the window, the radiator automatically turns off, the same as the air conditioning. (IP3)

> I know that numerous initiatives or even new projects are always being tested. For example, using waste heat from thermal springs to light surrounding gardening centers or farms. (...). However, at least look at how you can use the waste heat or water circulation with hot water for other things. (IP7)

As can be seen, various measures are implemented in thermal baths to increase their energy efficiency. Using photovoltaic, as in the thermal spa where IP6 works, points to the increased use of renewable energy. In addition, energy sources such as these reduce dependence on non-renewable energy, which are far more harmful to the environment. Sofi et al. (2022, p. 964) also addressed renewable energy and highlighted its importance for sustainable tourism. In contrast to Szromek et al. (2023, pp. 13-16), who found that only 39 % of their interviewed businesses used

or planned to invest in renewable energy, the data showed that renewable energy sources are used or planned to develop further in all considered establishments.

As can be seen from "reduced water consumption in the showers", "changed all the lighting fixtures to LED fixtures" and "use the waste heat (...) for other things", the thermal spas also try to reduce water and energy consumption to conserve resources. IP6 also highlighted the importance of avoiding energy waste and emphasized the need for regular renovations of the establishments. In terms of reducing energy consumption, IP4 also addressed the importance of thermal baths for the local energy supply: "We [the thermal spas] consume a percentage [of energy and heat] ourselves, a part comes to the local heating network (...)". This approach clarifies that hot springs do not leave rest energy or heat unused and thus also supply surrounding buildings, which contributes to energy efficiency and sustainability. Pröbstl-Haider et al. (2021, p. 162) also referred to this role of thermal spas, particularly highlighting the Therme Rogner Bad Blumau and the Heiltherme Bad Waltersdorf, which act as local energy suppliers.

Thermal spas also strive to heat as sustainably as possible and use hot thermal springs for heating. In the thermal bath where IP4 operates, the water that comes to the earth's surface at "about 80 degrees" must first be cooled. The excess heat is then used to heat the establishment. IP8 also addressed the energetic use of hot springs in this context: "We have now made a new fourth borehole and were then able to make it more efficient in energy production than could be done with the other boreholes. Also, there we can win more energy". It should be noted here, however, that not all six thermal spas have hot enough springs, and some facilities must expend additional energy to heat the water. IP2 emphasized that these processes are "very energy intensive."

As can be seen, the measures mentioned relate very strongly to ecological aspects, such as energy and heat consumption. Pröbstl-Haider et al. (2021, p. 161) also discussed measures wellness businesses can implement to counteract high energy consumption. The measures described in Chapter 3.3 are very similar to the points mentioned by the interviewees. The data showed that thermal spas implement and plan to apply further measures to promote sustainability and minimize adverse

ecological impacts. In addition, the role of thermal baths as local energy suppliers was highlighted, allowing residents to save energy costs and promoting sustainable energy use in the surrounding area.

7.3.2 Infrastructure

In addition to energy efficiency measures, respondents also mentioned initiatives to improve the infrastructure in the Thermen- & Vulkanland. Above all, improving accessibility to the thermal spas is of great importance since IP4 highlighted that it is "challenging to get around without a car" in the region. Also, IP6 emphasized the public transport problem and stated that Southeast Styria is one of the "most motorized districts and not for no reason". Because of this problem, the tourism association behind the Thermen- & Vulkanland implemented a measure to promote public travel with the so-called Thermenlandbus. IP5 described the initiative as follows:

> Well, it is or was for years that tourists came to us by car. We have now tried the Thermenlandbus...the guests can drive from Vienna directly to all six thermal spas and back at a relatively low price. You can also take your bike with you. So sustainable travel is significant, and the guests also use it. Last year in the summer months, it was also the case that sometimes a second bus had to be used for each route because no more seats were available or because many more people wanted to book than seats were available. (IP5)

IP5's emphasis that the bus was very well booked, especially in the primary season, and that a second bus even had to be used indicates that guests very well received the initiative. Moreover, it shows that the demand for sustainable travel options is growing. The emphasis on "you can also take your bike with you" clarifies that guests combine their thermal spa vacation with other activities. Tourists getting around by bike and the variety of cycling paths in the Thermen- & Vulkanland, highlighted by IP2, underlines environmentally friendly mobility also during the stay. The fact that efforts are made to promote environmentally friendly mobility during vacations got also evident in the conversation with IP5, who added that even "thermal spa hopping" is offered, in which guests can visit several thermal spas during their stay in the region. These results underline Schönherr et al.'s (2023, p. 5) assumption

that tourism businesses should support and invest in environmentally friendly transportation. According to Brandao et al. (2021, p. 4), these aspects are also crucial for wellness businesses such as thermal spas, often located in rural regions with poor public transport connections.

In the past, the tourism board also tried implementing other initiatives to improve regional transportation. In the interviews with IP5 and IP6, the "Vulkanland Taxi" was mentioned, a shared cab that drove around the clock. According to IP6, the offer was designed for guests and residents, but the initiative failed due to a lack of staff and high implementation costs. Regarding this aspect, a connection with Szromek's (2023, p. 15) assumption that people's awareness of sustainability increases only when they are educated about the topic and trained regarding environmentally friendly behavior can be recognized. However, IP6 highlighted that implementing a shared cab works better at a municipal than regional level. The interviewee also highlighted the initiative's popularity, stating that "around 25,000 passengers" are transported annually and that the bus company behind the shared cab puts together "100 driving hours" per week.

In addition to the measures to promote public travel, IP2 also emphasized that infrastructure is a "process" that can take place over "20 to 30 years". Providing enough charging stations for e-cars is a significant challenge for the thermal spa he operates. However, it should be emphasized that the respondent recognized the long-term sustainable development process and was aware of slow growth.

7.3.3 Regionality

In the context of the measures to promote sustainable tourism, the interviewee also increasingly addressed regionality. Above all, the purchase of regional food and cooperation with regional businesses was emphasized by IP2, IP3, IP4, IP6, and IP8. The latter saw especially the added value that remains in the Thermen- & Vulkanland as a great advantage for all tourism businesses: "The businesses profit on the one hand already through regional sales and tourists, because they buy chocolate or consume a wine, and eat the Schnitzel that the farmer around the corner makes." As the quote shows, regional businesses benefit significantly from regional product

and service demand. The reference to the "Schnitzel" also shows that guests want to discover the culinary side of the region, which means that traditions and cultures can be preserved. Based on the results, thermal spas in the Thermen- & Vulkanland can be perceived as instruments for attracting guests, from which other businesses can benefit, and the economy can be strengthened. IP2 also addressed the aspect of regional value creation and believed that thermal tourism in the Thermen- & Vulkanland is "fundamentally sustainable because the value creation remains mainly in the region." In connection with the regional sourcing of food, IP5 also mentioned the strengthening of the economy, as the "thermal baths ensure that the economy lives in the region." Regarding the statements of IP2 and IP5, it should be noted that, in their eyes, the benefits of the thermal spas relate primarily to the economic aspects of the Thermen- & Vulkanland. As mentioned in previous chapters, thermal baths can create jobs and promote regional companies, which in turn can strengthen the economic dimension of sustainability. However, as seen in Chapter 3, sustainability's goal is to balance its three dimensions (Suchanek et al., 2021). In order to ensure long-term sustainable development of tourism, it is of great importance not only to consider economic factors but also to pay attention to the environment and the social dimension.

In addition to measures for regional food procurement, thermal spas are also significant employers and try to make the region an attractive workplace for residents. Thermal baths also try to implement various measures to retain employees over the long term. At the thermal spa where IP2 operates, employees are offered the following: "We also offer our employees their own house, where they can spend the night free of charge. This has become an issue precisely because of energy prices." Measures for employee retention are also implemented at the thermal establishment, where IP8 is the managing director:

> We have an employee fund. This fund contains money that is paid out immediately and without complications. This means if an employee gets into financial difficulties through no fault, their car breaks down (...). Another could not afford the funeral of her family member. The next had lost a tooth and had too little money to afford this tooth repair. That is what this employee fund is

> for. Or we have now paid for an employee's flight to Iran, who has not seen his parents for years (...). (IP8)

As can be seen, it is of great importance for thermal spas to obtain employees from the region and to keep them long-term by improving employee satisfaction. By providing free housing, the thermal baths also respond to economic difficulties and try to relieve their employees financially. The provision of an employee fund at the establishment where IP8 operates also highlights the importance of employee well-being. Brandao et al. (2021, p. 4) also addressed the importance of wellness businesses as employers since they are usually found primarily in rural areas and can strengthen the regional economy in the long term by creating jobs.

7.3.4 Waste Management

It became apparent that also waste management is essential for thermal spas in the Thermen- & Vulkanland. Especially in the thermal baths where IP3 and IP4 are employed, the implementation of efficient waste concepts is of great significance. IP4 mentioned, for example: "We have also developed waste management concepts where we try to avoid waste and, if it occurs, deal with it in the best way possible. This applies to house technology or catering, for example." IP3 also discussed the waste separation approach in the thermal spa where she works:

> We have a large restaurant where 600 guests eat in the evening. I have a great waste separation system in the service office - with white glass, colored glass, plastic, paper, and residual waste. The classic stuff. But I also know that at the end of the day, if the paper is wet or there is food or leftovers on it, I must put it in the non-recyclable waste. But I still go that way because I see sustainability as our responsibility, and if only one employee learns from it, to establish a proper waste system at home as well. Then I have done a good job, even if it only sometimes works 100 % in my business. But it is my responsibility to act as a role model. (IP3)

The statements of IP3 and IP4 show that large waste amounts are generated in thermal spas, especially in the catering area. As seen from "if the paper is wet or there is food or leftovers on it, I must put it in the non-recyclable waste", IP3 was

aware that waste separation does not always work optimally. Despite this challenge, the interviewee tries to act as a role model and show her employees that sustainable measures can be implemented despite difficulties. By thinking outside the box and considering employees' procedures at home, it is shown that IP3 has a great awareness of sustainability. In addition to implementing efficient waste concepts, IP3 also addressed the recycling of raw materials and explained that in her establishment also in-house gin is produced. The juniper berries left over from the production are used as sauna infusions or as exfoliants in cosmetics. As can be seen, leftover materials can be used efficiently and recycled through these procedures. This eliminates the need to buy new products, thus avoiding waste and saving energy for new production. Additionally, it can be assumed that thermal spas in the Thermen- & Vulkanland deal with innovative ideas to reduce waste in the long term.

7.4 Impact of the Energy Crisis

7.4.1 Losses

As shown in previous research, investments in energy-saving and renewable technologies are essential for sustainable development. Nevertheless, especially during a crisis, implementing sustainable measures can get challenging for businesses (Zuk & Zuk, 2022, p. 711). Due to this, interviewees were asked about the impacts of the current energy crisis. The data indicated that thermal spas struggle with profit and revenue losses. In this context, increased costs, especially energy costs, were highlighted:

> The high energy costs are, of course, insane because thermal spas already (...) have very, very high energy costs, and in some cases, they have doubled or more, which is insane. (...) So the biggest challenge is to cover the costs and work efficiently. So that is...is now, of course, from the allocation of employees, the conversion of lighting, to upgrade photovoltaics and geothermal energy as quickly as possible, and those are the real challenges. (IP6)

As can be seen, it is challenging for thermal spas to stay profitable during an energy crisis. As IP6 pointed out, and as Aydin (2022, p. 467) and (Pace (2016, p. 410) also

stated, tourism businesses generally struggle with high energy costs, which have increased even more during the current energy crisis. By referring to this development as "insane," it becomes apparent how high this increase must have been. As IP6 highlighted, currently, the biggest challenge for thermal baths is to cover the high costs but at the same time also implement energy-saving measures that energy consumption can be reduced in the long term. In the interview with IP6, the use of renewable energies was mentioned, which is also considered by Becken and Simmons (2022, p. 352) and Huseynli (2022, p. 1925) as an ideal measure to reduce high energy consumption. IP5 also mentioned price increases and adjusted opening hours as further measures to remain profitable as a thermal spa:

> The prices [entrance fees] were only increased minimally. So, everyone was very, very agreed that these price increases in the energy sector should not be passed on to the guests, or only minimally. (...). The opening hours have also been partly adjusted, where we have looked at where there is hardly any occupancy, where we have to improve further. Also, the opening hours of the saunas. But one has always tried, of course, to offer the guest the best possible vacation experience. (IP5)

The emphasis on "only increased minimally" and "everyone was very, very agreed that these price increases in the energy sector should not be passed on to the guests" shows that thermal baths are trying to keep the financial burden on visitors as low as possible. IP3 also clarified that "a visit to a thermal spa must remain affordable" and should not become a luxury product or only be accessible to a particular population segment. Furthermore, it becomes apparent that the operating times of thermal baths were adjusted to become more efficient. Nevertheless, it is of great importance to thermal spa owners to offer their guests the best possible experience, even during a crisis. In the context of energy consumption, IP8 also addressed the high heat consumption of hot springs and highlighted that facilities need a specific room temperature, as visitors are mainly in bathing clothes. IP4 saw it as problematic if thermal spas would reduce room temperatures for energy-saving reasons, as this would "create more debate on the market".

In addition to high energy costs, the data also showed that increased minimum wages and rising personnel costs represent further challenges for thermal facilities. IP4 went into more detail about the increase in collective agreements in the thermal spa where she works:

> We have just received the collective agreements for the catering and hotel industry. I believe they are 9.3 %, or even higher, depending on where you are classified. Higher than 9 % and that is, of course, if you calculate it, an issue. We have almost 160 employees in [workplace 6], so you can already calculate what that does on a larger level. (IP4)

The increase in minimum wages had a noticeable impact on thermal spas, as they are particularly costly for companies that employ large numbers of staff. The respondents classify the wage increase as a relevant issue that, in addition to increased energy costs, represents another threat to thermal spas' profitability.

7.4.2 Debt Capital

Another challenge mentioned by the interviewees, which goes hand in hand with the loss of sales and profits, is the increased demand for debt capital. Due to the reduced availability of financial resources, thermal spas are more dependent on external capital, and investments are questioned more during a crisis, as can be seen in the following quotes:

> Financing from own resources will certainly decline. That means we [the thermal baths] need...um many subsidies from the state, so that this pace, the constructional colonization, the insulation of the buildings and so on...that this continues (...). (IP2)

> I also believe that the funding issue...everyone will now have to try to get funding commitments. And of course, it is also true that everything costs something, and it was not necessarily possible to build up reserves in recent years, which you need for something like this, right? So that is certainly a challenge. (...). And everyone says - the more help, the better. Because it simply speeds up. If you can afford more, you will build more photovoltaics.

> You will do it faster. So, of course, it opens completely different scopes of action (...). (IP4)

Both respondents strongly emphasize the need for governmental support. Especially the need for subsidies for renewable energy systems is significant for thermal spas, as these can barely be expanded without financial support. Salahodjaev et al. (2022, p. 13289) also addressed this aspect and pleaded with governments to support tourism businesses regarding investments in renewable energies or to take over part of the initial costs so that tourism establishments can reduce their energy consumption more easily.

IP4's emphasis that "it was not necessarily possible to build up reserves in recent years" reveals that thermal spas have also previously faced unforeseen challenges, like the COVID-19 pandemic. Consequently, it was not possible to set aside financial resources, which are of great necessity during a crisis. In this regard, however, IP6 highlighted that "the state has put much money in hand" to support tourism businesses during the COVID-19 pandemic. Nevertheless, in the eyes of the interviewee, there will be no more state support "in the intensity" as it is no longer affordable for the state.

Summarizing and referring to the previous chapter, thermal spas face financial challenges due to the energy crisis. Implementing energy-saving measures, such as renewable energy systems, can only be realized with difficulty without financial support or subsidies from the state. Also, it is challenging for thermal baths to build up financial reserves to protect them in difficult times and help them maintain their economic activity.

7.4.3 Awareness

In addition to the already mentioned aspects, the energy crisis raised awareness for implementing sustainable measures. Mainly due to the increased energy prices, energy efficiency gained significant importance in the thermal spas of the Thermen- & Vulkanland, as IP2 pointed out:

> And so you try to make everything energy efficient. Certainly, a lot has been done in hotels, especially in the last two years. Overall, because the topic of energy has become so expensive, where one has predicted, one makes just a little bit what. Now everyone has felt it on the bank account and has had to do something (...). These are all things that are the main topic in almost every thermal spa now, to say okay, how can I make it more energy efficient (...). (IP2)

As the quote from IP2 makes clear, thermal baths already implemented energy-saving initiatives before the energy crisis. However, based on "now everyone has felt it on the bank account", it gets evident that energy costs have risen sharply during the crisis, and thermal spas are struggling with this cost increase. It can thus be assumed that quick implementation of energy-saving measures has become more important. By emphasizing "the main topic in almost every thermal spa", the interviewee also clarified what priority the energy crisis has for the management and that the energy crisis has led to a rethink regarding energy efficiency and sustainability. However, IP3 and IP6 also addressed that tourism businesses had already dealt with sustainable measures before the energy crisis. According to IP4, measures were implemented with "great vigor" during the crisis, allowing initiatives to be implemented comparatively faster than before the energy crisis. Furthermore, IP4 and IP7 mentioned:

> So, I think this topic has generally preoccupied us [the thermal spa], simply because (...) working makes you realize that you must treat nature and resources carefully. The idea was never far away for us [in the thermal spa], so you can already feel that when you work with a natural product. But the crisis has accelerated this. As we said before, the projects have been implemented more quickly. (IP4)

> Of course, the crisis has led to a further increase in demand for subsidies for photovoltaic systems. And here, too, a change has taken place. (...). So, this rethinking started long ago, especially when the energy in Austria is already very well positioned. But the energy or fundamental crises can have a stronger impact here. (IP7)

As IP4's statement shows, the idea that resources must be conserved was already known in the establishment where she works before the energy crisis occurred. However, the crisis can be identified as an accelerator that increased awareness of sustainable measures. In this context, IP7 also emphasized that more and more companies want to implement renewable energy systems, significantly increasing the demand for subsidies during the crisis. Thus, the statements of both interviewees illustrated that the energy crisis had increased awareness of resource conservation in spas. The data is consistent with the findings of Schönherr et al. (2023, pp. 2-7), who found that crises increase awareness of sustainability and accelerate the implementation of sustainable measures.

IP3 also emphasized sustainable awareness and said that in the thermal spa where she works, "this path will continue to 100 % in the future". IP5 also referred to this and is convinced that awareness will not decline after the crisis. IP7 also emphasized that "you should not let it go just because the crisis might be over sooner than you thought". Nevertheless, the interviewee highlighted that the implementation time of the measures might slow down again. The issue of slower implementation after a crisis is also addressed by Schönherr et al. (2023, pp. 2-7) and Sofi et al. (2022, p. 965), who stated that sustainable tourism could only be achieved through long-term measures and that the development could be negatively impacted if awareness becomes lower after the crisis.

7.5 Influencing Factors

7.5.1 Energy and Heat Demand

Interviewees were also asked about other influencing factors affecting sustainable development, especially during an energy crisis. Regarding this question, respondents saw particularly thermal spas' high energy and heat consumption as challenging:

> So, our main issue is that we do not get hot enough thermal water, so we must heat that. The second major issue is the pumps. Regarding energy (...), heating is a significant issue because anyone who has ever been to an indoor

> swimming pool or thermal spa knows I am there in a bikini or swimming trunks, or at most, in a bathrobe. I need more than room temperature there. Those are the three significant factors driving energy. (IP2)

As seen, thermal pools' water must have a pleasant temperature. However, as stated by IP2, not all thermal spas in the Thermen- & Vulkanland have the same hot springs available, meaning some establishments must use more energy to heat the water than others. For example, in the thermal bath where IP2 operates, the water must be heated prior to use, whereas in IP3's establishment, this process is unnecessary due to the hotter thermal spring. In addition to the pool water, the facilities of a thermal spa must also have high room temperatures, as visitors are only lightly clothed. This comfort is another primary requirement for thermal baths' energy supply. IP3 also addressed this aspect and highlighted that much energy is needed to heat all facilities, especially in winter and transition months: "We have heating periods where we start in September and stop in May because the guest is with us in swimwear. We do not heat only for three or four months of the year. Otherwise, it has to be comfortably warm." As IP3's statement shows, there are specific periods when thermal baths must increase heating to provide a comfortable stay for their visitors. By emphasizing "comfortably warm" it can be assumed that guests expect a specific temperature and that this can only be achieved with additional heating. IP8 also confirmed this assumption and emphasized that guests want "warm water and a warm relaxation room" and that these expectations have more importance for them than the aim of saving energy.

As seen from IP2's quote, pumps also represent an energy challenge for thermal baths. The interviewee also stated that the "issue of technology" is underestimated, as the pumps are in motion "almost 24 hours". By emphasizing "almost 24 hours", it becomes evident that thermal water processing is very time-consuming and requires continuous pump operation, which involves high consumption of energy resources. In addition to technical aspects, numerous interviewees perceived the sauna areas as very energy intensive. Particularly, IP3 discussed this aspect:

> So, the main energy consumers in the thermal spa area are the saunas. For example, we [the thermal spa] have 14 saunas in our area, from the Finnish

> outdoor sauna to the Roman sweat bath. (...) the sauna opens at 10:30 in the morning and closes at 11:00 pm. Starting up a single sauna heater (...) and running it from 10:30 am to 11:00 pm (...) requires as much energy as the entire light fixtures in the hotel complex, with 312 rooms and six restaurants. (IP3)

By naming the saunas as "the main energy consumers" and comparing their energy consumption with that of the entire hotel and restaurant area, it can be assumed that saunas require the highest energy proportion in thermal spas. By highlighting operating hours, it also becomes evident that various saunas are open all day, and energy must be supplied intensively during this time, further underscoring the high energy requirements of thermal baths. In this context, also IP2 addressed the high energy expenditure and highlighted that in the thermal spa where he operates, he could only meet "6 to 8 %" of the energy needs with renewable energy. Compared to the literature, an agreement can be found with Pröbstl-Haider et al. (2021), who also mentioned pumps and saunas as the primary energy consumers in thermal baths. Furthermore, they discussed the heating of thermal water and individual rooms and stated that thermal spas' heat consumption is usually higher than their energy consumption (Pröbstl-Haider et al., 2021, p. 161).

7.5.2 Values

Another influencing factor perceived by the interviewees is a change in society's values. IP3 mentioned, for example, that people are becoming increasingly aware of sustainability and that guests also expect the offer of sustainable products and services:

> If I were to put a [company 7] or a [company 8] ice cream menu on the table for our restaurant guests - the ice cream is excellent, yes? (...). If I were to put this pre-printed, classic ice cream menu on the table...I guarantee you I would have it at my office desk ten times a day, and the customer (...) would say: "[IP3], I am going to a world unique. You are sustainable. I come here because you are different. I can get this ice cream menu at home at the gas

> station around the corner too!". The customer becomes so sensitive that he also searches. (IP3)

As can be seen, tourists are increasingly looking for sustainable offers. IP3's statement that guests come to her thermal spa "because it is different" further illustrates visitors' crave for unique experiences. If these conditions are not met, it can be difficult for thermal baths to fulfill their visitors' expectations. In this context, IP3 also discussed the seasonal offerings at thermal spas, highlighting that regional fruits and vegetables are only offered at the buffet within the season. The interviewee clarified that in her establishment she has received much negative feedback due to this measure. In this context, IP3 also stated that actions like this need to be communicated more clearly to the guest, as you fall back into "sub-quality" if you "do not communicate sustainability". IP7 also emphasized that clear communication is essential since "guests already deal with the topic", but the flood of information usually overloads them. In this context, IP1, IP2, IP3, IP5, and IP7 also addressed that sustainability must be perceived as a process of learning and adaptation. As seen in the conversations with IP2 and IP8, most thermal bath visitors demand sustainability. Nevertheless, the least also behave following this demand:

> (…) I first said we would remain restrictive. There is nothing fried in the restaurant. There is no fried chicken salad. There is no Wiener Schnitzel. Unfortunately, I gave up on that after a month because of the resistance and the multitude of complaints. Now there is at least a fried chicken salad because people demand it. It does not help. I always have to adapt to my guests a little bit...so you can see that it will undoubtedly take some time before people take note of that. (IP2)

> And then there was also the discussion in thermal spas, do we make our water colder, or do you heat your relaxation room less or close the sauna earlier? However, in truth, none of that works. Because when you come to a thermal bath, you do not care whether I save electricity. The guest wants warm water and a warm relaxation room. Nobody asks whether we are energy efficient or not. (IP8)

As both quotes underline, it can be challenging for thermal spas to develop sustainably. Although both interviewees emphasized that they tried to act more sustainably by offering meat-free alternatives or thinking about reducing their energy consumption, these measures had to be discarded in the end due to guests' expectations. The statements "I always have to adapt to my guests" or "The guest wants warm water and a warm relaxation room" also show that visitors' satisfaction is of greater priority for the establishments, even if this makes their sustainable development increasingly tricky. In this context, the literature (Szromek et al., 2023, p. 2; Wang et al., 2021, p. 2) only mentioned that tourism businesses should encourage their guests to behave sustainably and to use sustainable offers. Potential challenges that may arise on this path and were mentioned by IP2 and IP8 were not discussed in these publications.

7.5.3 Duration of Implementation

In addition to the aspects already mentioned, the data showed that the implementation period of measures is seen as an influencing factor in sustainable development. IP2, for example, saw the implementation of sustainable measures as a "multi-year process" that does not "work overnight." IP3 also emphasized this view and highlighted that there is "long-term planning" behind sustainable tourism. Particularly, IP7 commented more on this context:

> No tourist business or area can change everything overnight and say: "We have gone from 0 to 100 in a year." It does not work that way. However, to think about what makes sense and how? (...). Are there points I can resolve here relatively quickly or in the short term? Can I look for instructions for action here? Taking the first step is the biggest challenge that thermal spas face. (IP7)

> (...) in the short term, I also do not believe that you can set a five-year plan to be sustainable, and when you have set all the checkmarks, you are fit for the future, and everything will always remain the same. Sustainability is a process, and many factors can promote or slow down this process. (...). Even in

> the future, one must always reevaluate and see where one stands and what one can do (...). (IP7)

IP7 pointed out that rapid change is unrealistic, as sustainable change is always subject to long-term planning. However, by referring to "points I can resolve here relatively quickly" the interviewee stated that thermal baths should still consider which measures can be implemented quickly to achieve rapid improvements. Nevertheless, IP7's statements support the assumption that sustainable change takes time and that thermal spas must be aware of this to implement the measures successfully. In this context, the interviewee also emphasized the importance of evaluating defined goals and measures repeatedly, as sustainability is influenced by "many unpredictable factors." Therefore, it can be said that there is no perfect strategy that will last for years and that tourism businesses can always stick to.

Also, Sofi et al. (2022) considered the implementation period and the long-term planning of sustainable measures as influencing factors. The authors also mentioned that those responsible for tourism businesses often suffer from a sustainability knowledge lack, leading to further difficulties in the implementation process (Sofi et al., 2022, p. 965). In this context, however, all interviewees were very knowledgeable and could answer numerous points about which measures are implemented in thermal spas to promote sustainability.

7.5.4 Logistical Problems

As a last factor that can influence sustainable change, the interviewees increasingly mentioned logistical difficulties. Especially concerning the purchase of regional food, IP2 emphasized, that big tourism businesses face difficulties:

> However, as a large company, you reach the limits even there. Unfortunately, if I take the kitchen...we process no half pigs, as it is said here in southeast Styria...um, but the chef needs the loin. (...) now I need, of course, already relatively large pig farmers. With 92,000 overnight stays, I need a certain quantity. I do not manage to get that from the region, but we try to do it as best as possible. (IP2)

As the interviewee pointed out, tourism businesses need a certain amount of food to meet the needs of their operations. However, these quantities can only be sourced partially from the region due to a need for more farmers. Regarding this connection, IP6 also highlighted that establishments must know that regional food sourcing is seasonal and that certain fruits and vegetables are only available at specific times of the year. This aspect and the non-existence of regional products in masses illustrates how difficult it is for large companies, such as thermal spas, to become more sustainable in these matters.

In addition to the problem of sourcing regionally, logistical difficulties in the delivery of technical products were also mentioned. IP8, for example, stated that many products and raw materials are unavailable during the crisis. Also, IP4 emphasized this problem:

> We know that delivery times are longer. That...I am thinking now of photovoltaic. The modules have not become cheaper either. They also come from the Far East, partly or further away. That means that the purchase costs have increased. You may only get some of the companies as you would like to have them or need them now. (IP4)

The statements "delivery times are longer" and "have not become cheaper" indicate that the energy crisis and previous exceptional situations, such as the COVID-19 pandemic, have led to tedious difficulties in obtaining raw materials. Also, a need for more skilled workers to install photovoltaic modules represents a challenge for thermal spas. In summary, thermal baths must deal with high energy costs during an energy crisis and face further obstacles on the way reducing them.

8 Conclusion

In the following chapter, the defined research questions are answered based on the findings of the data collection. Additionally, the study's limitations are pointed out, and practical implications as well as recommendations for future research are given.

8.1 Summary of Major Findings

This thesis aimed to gain new insights regarding sustainable thermal tourism during an energy crisis. The study focused on thermal spas in the Thermen- & Vulkanland, which were examined concerning sustainable measures they implemented and challenges they faced, specifically during an energy crisis. The research questions defined at the beginning of the thesis are answered below:

What role do thermal spas play in sustainable tourism in the Thermen- & Vulkanland Vulkanland during an energy crisis?

In summary, the thermal spas in the Thermen- & Vulkanland can be seen as tourist magnets that attract guests to the region even during the energy crisis. Especially during the crisis, which occurred precisely after the tourism recovery following the COVID-19 pandemic, the six thermal spas of the Thermen- & Vulkanland can assert themselves as regional economic engines. The existing affordability of a stay at a thermal bath during an energy crisis continues to ensure tourist volumes in the Thermen- & Vulkanland, which means that regional jobs remain and cooperation with regional businesses continue to be cultivated. The data collected also confirm that thermal spa guests buy regional products during their stay or consume directly on-site, for example, at numerous Buschenschänken, significantly increasing regional added value.

Regarding the social dimension of sustainability, the study implies that thermal spas try to sensibilize their guests concerning sustainability, for example, by offering only regional and seasonal products in their restaurants. However, the results of the interviews show that raising awareness among hot spring visitors is usually very difficult, as sustainable measures often do not match guests' expectations. Regarding

this problem, the interviewees emphasized the importance of intensively communicating sustainable measures. The data also suggests that sustainability must be seen as an adaptation process for guests and businesses, which cannot happen overnight.

Concerning the ecological component of sustainability, numerous initiatives are being implemented in the Thermen- & Vulkanland to improve public travel, such as the Thermenland bus. In addition, thermal baths with a sufficiently hot thermal spring can act as local energy providers and supply surrounding buildings with energy, saving residents high energy costs. By increasing the use of renewable energies, such as photovoltaics, and implementing other sustainable measures to increase energy efficiency, thermal spas can also be seen as role models for other regional tourism businesses during the energy crisis.

In conclusion, thermal baths in the Thermen- & Vulkanland are of great importance for sustainable tourism during an energy crisis. The establishments not only act in an economically sustainable way but also fulfill the social component of sustainability by preserving cultures and traditions. Although hot springs face ecological challenges due to their very high energy consumption, it is essential to emphasize that all surveyed establishments have implemented measures to reduce their ecological footprint and plan to continue reducing it in the future. This highlights the commitment of thermal spas to sustainable tourism development in the Thermen- & Vulkanland, especially regarding the ecological component.

What is the significance of thermal spas for tourism in the Thermen- & Vulkanland Steiermark?

The six thermal spas of the Thermen- & Vulkanland are of enormous economic importance for the region. As the study reveals, the emergence of thermal baths has created numerous jobs, offering residents of the Thermen- & Vulkanland work near their homes. Besides creating jobs, the appearance of thermal spas resulted in an upswing in regional tourism, which also led to the emergence of many smaller tourism businesses. Moreover, the results clarify that these regional businesses consider thermal baths as role models and are oriented towards them, especially regarding sustainable development. For example, smaller tourism businesses are

also motivated to become sustainable when they see that measures to promote sustainability can be successfully implemented by thermal spas despite challenges. Furthermore, hot springs are seen as the USPs of the Thermen- & Vulkanland and are essential to differentiate the region from other Styrian areas, similar in landscape and culinary. Above all, the seasonal and weather-independency of the thermal spas attracts visitors to the Thermen- & Vulkanland throughout the year.

The data collected also show that thermal baths are not only attractive for tourists but are also important for residents of the Thermen- & Vulkanland. Due to the health focus of some establishments, thermal spas represent an essential aspect of preventive health care. In addition, the results indicate that residents also visit thermal baths for leisure or to recover from stressful everyday life. In general, several interviewees point out that, compared to other regions, such as southern Styria, residents are unaffected by tourist volumes, as guests mainly stay in the thermal spa areas.

How do thermal spas in the Thermen- & Vulkanland Steiermark understand sustainability?

The study clarifies that sustainability is perceived as highly complex and challenging to measure. Although all interview participants were familiar with the term and its dimensions, the results suggest that the comprehensive nature of the concept poses a challenge for thermal baths and that a uniform definition is urgently needed. In addition to the complexity of the term, the research reveals that the interviewed thermal spa and tourism experts strongly associate sustainability with ecology and regionalism. Concerning ecology, the results show that aspects such as the environment, energy, and a resource-conserving approach are of great importance for thermal baths. However, different views regarding the sustainability of thermal tourism are also found. Some respondents emphasize that there is still considerable potential for improvement in Thermen- & Vulkanland's thermal spas. In contrast, others argue that thermal baths are already significantly more sustainable than other resource-intensive forms of tourism, such as ski tourism. Concerning regionality, consistent results indicate that sourcing regional food and cooperating with regional businesses are essential to thermal spas in the Thermen- & Vulkanland.

How are thermal spas in the Thermen- & Vulkanland Steiermark trying to become more sustainable?

In summary, thermal spas are primarily implementing measures to increase energy efficiency and will continue to invest in that in the future. This includes, for example, implementing renewable energies such as photovoltaic systems and covering outdoor pools to minimize heat losses. Numerous thermal spa operations also put waste management concepts into practice to enable more efficient waste separation. The interviews' results also show that initiatives to reduce water and heat consumption are realized in the thermal baths of the Thermen- & Vulkanland, for example, through more efficient use of air conditioning and radiators, the replacement of energy-intensive stoves with induction stoves, or the switch to LED lighting systems. The present study also illustrates that establishments use thermal springs for heating if they are hot enough and use the resulting residual energy and heat to heat surrounding buildings, thus acting as local energy suppliers.

The data also indicates that public travel is essential for tourism businesses in the Thermen- & Vulkanland and that measures are being implemented to improve the infrastructure. During the interviews, initiatives such as the Thermenland bus or shared cabs were mentioned, enabling travel to the region and promoting sustainable transport between the six thermal spas. In addition, it is also important for thermal baths to employ local workers and to cooperate with regional businesses regarding food sourcing. It can thus be concluded that the economic value added in the Thermen- & Vulkanland is maintained, and the regional economy is strengthened by the presence of thermal spas.

What challenges do thermal spas in the Thermen- & Vulkanland Steiermark face when trying to become more sustainable, specifically during an energy crisis?

Especially during an energy crisis, thermal spas in the Thermen- & Vulkanland face financial challenges. The study shows that during an energy crisis, price increases are noticeable in almost all areas, but especially in the energy sector. This poses a challenge for thermal baths as it is difficult for them to remain cost-covering and profitable while investing in measures to reduce their high energy consumption. As

a result, thermal spas in the Thermen- & Vulkanland increasingly depend on outside capital and subsidies to implement energy-saving measures, as it is challenging to build up financial reserves and make high investments during an energy crisis. Crises also bring uncertainties that can complicate long-term planning and implementation of the sustainability strategy.

The results also illustrate that increasing energy efficiency is another challenge for hot springs in the Thermen- & Vulkanland. In addition to the cost-intensive implementation of energy-saving measures, logistical difficulties, such as a lack of system parts for photovoltaic systems, can also make implementation during an energy crisis difficult. Additionally, it is found that only a part of thermal spas' high energy and heat amounts can be covered by renewable energies. Since visits to thermal baths are associated with high guest expectations, such as certain water or room temperatures, thermal spas in the Thermen- & Vulkanland find it increasingly difficult to implement sustainable measures, as these often do not match visitors' expectations. In this context, the results highlight the need to sensibilize guests regarding sustainable measures and to communicate them more strongly to achieve a better understanding. Furthermore, it becomes clear that sustainable development of thermal spas relates to a change of habits of all parties involved, which cannot happen overnight.

8.2 Research Implications and Recommendations

This thesis emphasizes the importance of further developing renewable energies in thermal spas. Based on this finding and the problem that thermal baths are increasingly dependent on outside capital during energy crises, it is recommended that the state or the government provide increased support to tourism businesses in these matters. In addition, the study reveals a need to raise awareness among guests and improve communication of sustainable measures. Therefore, it is recommended that thermal spas adapt their communication strategies and convey sustainable measures more clearly to their visitors. The study also shows that creating crisis plans is of great importance for thermal establishments. These plans should also include the ongoing adaptation and evaluation of their sustainability strategy.

Furthermore, the results suggest a clear need for a unified definition of sustainability. In this regard, it is recommended that further research is conducted to find a uniform definition and metrics for sustainability in thermal tourism to facilitate the implementation of sustainability. Subsequently, the results show that the cooperation of thermal baths with regional businesses should be further promoted, as this contributes to the value creation in the Thermen- & Vulkanland and sustainably strengthens the regional economy. In this context and due to the exemplary role of the thermal spas for other tourism businesses, it is also recommended to cooperate with businesses of the Thermen- & Vulkanland regarding sustainable development.

8.3 Limitations and Further Research

Since the study was conducted in a specific region of Styria, the results are not representative for the entire Austrian thermal tourism market. Due to this, further studies are of great importance to analyze this context and compare the results with other Austrian regions or other European countries. Also, the qualitative interviews conducted are only based on a small sample. Therefore, a more extensive survey with a larger sample, for example, from other thermal tourism regions, would be very interesting. Since seven out of eight interviewees were from Styria, a survey with thermal tourism managers from other parts of Austria could also provide further valuable insights into the topic. In addition, the data collection only included people who are professionally involved in thermal tourism. A more holistic perspective could be achieved by including views of thermal spa guests and residents of the Thermen- & Vulkanland.

Given that guest expectations are identified as a challenge for thermal spas, further quantitative research is recommended to analyze visitors' perspectives regarding sustainable measures. In addition, the results are limited to the challenges thermal baths face during an energy crisis. However, it becomes clear that other aspects, especially the shortage of skilled workers in tourism, represent further obstacles for thermal spas and need further investigation.

Another area for improvement is the conduction of online interviews. Five of the eight interviews were conducted via Microsoft Teams and Google Meet. In some

cases, the quality of the interviews was slightly affected by a poor internet connection. It should also be noted that the interviews were held in German, and the statements were subsequently translated, which may have unintentionally distorted the interviewees' responses.

9 List of References

Agacevic, A. & Xu, M, (2020). Chinese Tourists as a Sustainable Boost to Low Seasons in Ex-Yugoslavia Destinations. *Sustainability*, 12(2), 1-38. https://doi.org/10.3390/su12020449

Ahmad, N., Youjin, L. & Hdia, M. (2022). The role of innovation and tourism in sustainability: why is environment-friendly tourism necessary for entrepreneurship? *Journal of Cleaner Production*, 379, 1-16. https://doi.org/10.1016/j.jclepro.2022.134799

Andreu, M. G., Font-Barnet, A. & Roca, M. E. (2021). Wellness Tourism – New Challenges and Opportunities for Tourism in Salou. *Sustainability*, 13(15), 1-13. https://doi.org/ 10.3390/su13158246

Aydin, M. (2022). The impacts of political stability, renewable energy consumption, and economic growth on tourism in Turkey: New evidence from Fourier Bootstrap ARDL approach*. Renewable Energy*, 190, 467-473. https://doi.org./ 10.1016/j.renene.2022.03.144

Balsalobre-Lorent, D. & Leitao, N. (2020). The role of tourism, trade, renewable energy use and carbon dioxide emissions on economic growth: evidence of tourism-led growth hypothesis in EU-28. *Environmental Science and Pollution Research*, 27(36), 45883-45896. https://doi.org/10.1007/s11356-020-10375-1

Becken, S. & Simmons, D. G. (2002). Understanding energy consumption patterns of tourist attractions and activities in New Zealand. *Tourism Management*, 23(4), 343-354. https://doi.org/10.1016/S0261-5177(01)00091-7

Bernard, H. (2006). *Research Methods in Anthropology: Qualitative and Quantitative Approaches.* AltaMira Press.

Boyce, C. & Neale, P. (2006). *Conducting in-depth interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input*. Pathfinder International.

Brandao, F., Liberato, D., Teixeira, A. S. & Liberato, P. (2021). Motives for Thermal Tourism: An Application to North and Central Portugal. *Sustainability*, 13(22), 1-23. https://doi.org/10.3390/su132212688

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Butler, R. W. (1980). The concept of a tourism area life cycle of evolution. Le *Géographe Canadien*, 24(1), 5-12.

Canh, N. & Thanh, S. (2020). Domestic tourism spending and economic vulnerability. *Annals of Tourism Research*, 85, 1-19. https://doi.org/10.1016/j.annals.2020.103063

Chen, K-H., Chang, F-H. & Wu, C. (2013). Investigating the wellness tourism factors in hot spring hotel customer service. *International Journal of Contemporary Hospitality Management*, 25(7), 1092-1114. https://doi.org/10.1108/IJCHM-06-2012-0086

Chen, K-H., Liu, H-H. & Chang, F-H. (2013). Essential customer service factors and the segmentation of older visitors within wellness tourism based on hot springs hotels. *International Journal of Hospitality Management*, 35, 122-132. https://doi.org/10.1016/j.ijhm.2013.05.013

Creswell, J. (2013). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches.* SAGE Publications.

Das Thermen- & Vulkanland. (n.d.). Thermen- & Vulkanland. Called up on 23. February 2023 from https://www.steiermark.com/de/Thermen-Vulkanland/Region

Denzin, N. & Lincoln, Y. (2013*). The Landscape of Qualitative Research.* SAGE Publications.

Der Tourismusverband. (n.d.). Thermen- & Vulkanland. Called up on 23. February 2023 from https://www.steiermark.com/de/Thermen-Vulkanland/B2B-und-Presse/Der-Tourismusverband

Diallo, M. F., Diop-Sall, F., Leroux, E. & Vachon, M. A. (2022). How do tourism sustainability and nature affinity affect social engagement propensity? The central roles of nature conservation attitude and personal tourist experience. *Ecological Economics*, 200, 1-11. https://doi.org/10.1016/j.ecolecon.2022.107503

DiCicco-Bloom, B. & Crabtree, B. (2006). The qualitative research interview. *Medical Education*, 40(4), 314-321. https://doi.org/10.1111/j.1365-2929.2006.02418.x

Dickson, A., Akwasi, Y. & Attah Kusi, A. (2016). Constructivism philosophical paradigm: Implication for the research, teaching and learning. *Global Journal of Arts Humanities and Social Sciences*, 4(10), 1-9.

Dini, M. & Pencarelli, T. (2022). Wellness tourism and the components of its offer system: a holistic perspective. *Tourism Review*, 77(2), 394-412. https://doi.org/10.1108/TR-08-2020-0373

Farid, H., Hakimian, F., Nair, V., Nair, P. K. & Ismail, N. (2016). Trend of research on sustainable tourism and climate change in 21st century. *Worldwide Hospitality and Tourism Themes*, 8(5), 516-533. https://doi.org/10.1108/WHATT-06-2016-0032

Fleischhacker, V. (2020). *Zukunftsmarkt Gesundheitstourismus*. Tourismusforschung Austria. Called up on 19. November 2022 from http://www.tourismusforschungaustria.at/443273056.html

Gemeinsam Stärke zeigen. (n.d.). Thermen- & Vulkanland. Called up on 23. February 2023 from https://www.steiermark.com/de/Thermen-Vulkanland/B2B-und-Presse/Ausblick%202023

Gomez Perez, C. P., Gonzales Soutelo, S., Mourelle Mosquei, M. L. & Legido Soto, J. L. (2019). Spa techniques and technologies: from the past to the present. *Sustainable Water Resources Management*, 5(1), 71-81. https://doi.org/10.1007/s40899-017-0136-1

Groschupp, S. (2022). *Die Trade-offs der Nachhaltigkeit: Eine Forschungsreise zur dreiwertigen Logik und zu Science Constellations*. Springer Fachmedien Wiesbaden.

Gupta, S., Dangayach, G. S. & Singh, A. K. (2015). Key Determinants of Sustainable Product Design and Manufacturing. *Procedia CIRP*, 26, 99-102. https://doi.org/10.1016/j.procir.2014.07.166

Hashemkhani Zolfani, S., Sedaghat, M., Maknoon, R. & Zavadskas, E. (2015). Sustainable tourism: a comprehensive literature review on frameworks and applications. *Economic Research-Ekonomska Istrazivanja,* 28(1), 1-30. https://doi.org/10.1080/1331677X.2014.995895

Hennink, M., Hutter, I. & Bailey, A. (2019). *Qualitative Research Methods*. SAGE Publications.

Hieslinga, J. H., Hillebrand, H. & Emonts, T. (2019). How to improve innovation in sustainable tourism? Five lessons learned from the Austrian Alps. *Journal of* Tourism Futures, 5(1), 35-42. https://doi.org/10.1108/JTF-09-2018-0054

Higgins-Desbiolles, F. (2018). Sustainable tourism: Sustaining tourism or something more? *Tourism Management Perspectives*, 25, 157-160. https.//doi.org/10.1016/j.tmp.2017.11.017

Honebein, P. (1996). Seven Goals for the Design of Constructivist Learning Environments. In Wilson, B. (Ed.), *Constructivist Learning Environment: Case Studies in Instructional Design* (11-24). Educational Technology Publications.

How Spas Can Be Sustainable. (2021). Green Journal. Called up on 24. March 2023 from https://www.greenjournal.co.uk/2021/07/how-spas-can-be-more-sustainable/

Huseynli, B. (2022). The Role of Renewable Energy in the Development of the Tourism Sector. *African Journal of Hospitality, Tourism & Leisure*, 11(6), 1924-1936.

Jiang, L., Wu, H. & Song, Y. (2022). Diversified demand for health tourism matters: From a perspective of the intra-industry trade. *Social Science & Medicine*, 293, 1-10. https://doi.org/10.1016/j.socscimed.2021.114630

Johnson, L. R. (2017). *Community-Based Qualitative Research: Approaches for Education and the Social Sciences*. SAGE Publications.

Kaspar, C. (1996). Gesundheitstourismus im Trend. In Institut für Tourismus und Verkehrswirtschaft (Ed.), *Jahrbuch der Schweizer Tourismuswirtschaft 1995/1996* (53-61). Institut für Tourismus und Verkehrswirtschaft.

King, N. (2004). Using Templates in the Thematic Analysis of Text. In Cassell, C. & Symon, G. (Eds.), *Essential Guide to Qualitative Methods in Organizational Research* (256-270). SAGE Publications.

Köstinger/Weddig/Hochhauser/Gucher: "Thermen sind Quellen der Lebensfreude". (2021). Österreich Werbung. Called up on 23. February 2023 from https://www.austriatourism.com/newsroom/koestinger/weddig/hochhauser/gucher-thermen-sind-quellen-der-lebensfreude/

Kuzemko, C., Blondeel, M., Dupont, C. & Brisbois, M. (2022). Russia's war on Ukraine, European energy policy responses & implications for sustainable transformations. *Energy Research & Social Science*, 93, 1-8. https://doi.org/10.1016/j.erss.2022.102842

Land Steiermark. (2021). *Tourismus-Strukturreform 2021*. Verwaltung Steiermark. Called up on 23. February 2023 from https://www.verwaltung.steiermark.at/cms/ziel/160457289/DE/

Land Steiermark. (2022). *Thermen- & Vulkanland – Das (Tourismus)Jahr 2021: Daten & Fakten.* Called up on 23. February 2023 from https://www.verwaltung.steiermark.at/cms/dokumente/12208857_117401915/4b6284cb/11_Thermen-_%26_Vulkanland.pdf

Leitner, A. (2021). *Der ultimative Thermenguide – Teil 1*. Steiermark. Called up on 23. February 2023 from https://www.steiermark.com/de/Magazin/Der-ultimative-Thermenguide-Teil-1_mad_7360610

Li, H., Gozgor, G., Lau, C. & Paramati, S. (2019). Does tourism investment improve the energy efficiency in transportation and residential sectors? Evidence from the OECD economies. *Environmental Science and Pollution Research*, 26(18), 18834-18845. https://doi.org/10.1007/s11356-019-05315-7

Lukjanova, J. (2019). The role of health tourism in reducing the number of occupational diseases and accidents in the mechanical engineering and metalworking sectors in Latvia. *MATEC Web of Conferences*, 297, 1-7. https://doi.org/10.1051/matecconf/201929707007

Lu, Z., Gozgor, G., Lau, C. K. M. & Paramati, S. (2019). The dynamic impacts of renewable energy and tourism investments on international tourism: Evidence from the G20 countries. *Journal of Business Economics and Management*, 20(6), 1102-1120. https://doi.org/10.3846/jbem.2019.10181

Luo, Y., Chiang, L., Kim, E., Tang, L. & Song, S. (2018). Towards quality of life: the effects of the wellness tourism experience. *Journal of Travel & Tourism Marketing*, 35(4), 410-424. https://doi.org/10.1080/10548408.2017.1358236

Mahroo, A., Spoladore, D., Ferrandi, P. & Lovato, I. (2023). A Digital Application for Strategic Development of Health Tourism Destinations. In Spoladore, D., Pessot, E. & Sacco, M. (Eds.), *Digital and Strategic Innovation for Alpine Health Tourism* (73-85). Springer International Publishing.

Malik, M., Shah, S. A. & Zaman, K. (2016). Tourism in Austria: biodiversity, environmental sustainability, and growth issues. *Environmental Science and Pollution Research*, 23(23), 24178-24194. https://doi.org/10.1007/s11356-016-7609-x

Migliaccio, M. (2018). Thermal spas and their role in wellness tourism: An Italian Overview. *African Journal of Hospitality, Tourism & Leisure*, 7(6), 1-7.

Misik, M. (2022). The EU needs to improve its external energy security. *Energy policy*, 165, 1-5. https://doi.org/10.1016/j.enpol.2022.112930

Mohr, M. (2019). *Beste Regionen für einen Wellnessurlaub in Österreich im Jahr 2019*. Statista. Called up on 23. February 2023 from https://de.statista.com/statistik/daten/studie/1050831/umfrage/beste-wellnessregionen-in-oesterreich/

Mohr, M. (2022). *Umsatz aus Eintrittsgeldern der Thermen in Österreich von 2017 bis 2020 und Prognose für 2021 und 2022*. Statista. Called up on 19. November 2022 from https://de.statista.com/statistik/daten/studie/939009/umfrage/umsatz-von-thermen-in-oesterreich/

Mueller, H. & Kaufmann, E. (2001). Wellness tourism: Market analysis of a special health tourism segment and implications for the hotel industry. *Journal of Vacation Marketing*, 1(1), 5-17. https://doi.org/10.1177/135676670100700101

Nowell, L., Norris, J., White, D. & Moules, N. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, 16(1), 1-13. https://doi.org/10.1177/1609406917733847

Osicka, J. & Cernoch, F. (2022). European energy politics after Ukraine: The road ahead. *Energy Research & Social Science*, 91, 1-6. https://doi.org/10.1016/j.erss.2022.102757

Pace, L. A. (2016). How do tourism firms innovate for sustainable energy consumption? A capabilities perspective on the adoption of energy efficiency in tourism accommodation establishments. *Journal of Cleaner Production*, 111, 409-420. https://doi.org/ 10.1016/j.jclepro.2015.01.095

Palacios-Florencio, B., Santos-Roldan, L., Berbel-Pineda, J. M. & Castillo-Canalejo, A. M. (2021). Sustainable Tourism as a Driving force of the Tourism Industry in a Post-Covid-19 Scenario. *Social Indicators Research*, 158(3), 991-1011. https://doi.org/10.1007/s11205-021-02735-2

Paramati, S., Alam, M. S. & Lau, C. K. M. (2018). The effect of tourism investment on tourism development and CO_2 emissions: empirical evidence from the EU nations. *Journal of Sustainable Tourism*, 26(9), 1587-1607. https://doi.org/10.1080/09669582.2018.1489398

Pereira, P., Zhao, W., Symochko, L., Inacio, M., Bogunovic, I. & Barcelo, D. (2022). The Russian-Ukrainian armed conflict will push back the sustainable development goals. *Geography and Sustainability*, 3(3), 277-287. https://doi.org/10.1016/j.geosus.2022.09.003

Pessot, E., Spoladore, D., Zangiacomi, A. & Sacco, M. (2021). Natural Resources in Health Tourism: A Systematic Literature Review. *Sustainability*, 13(5), 1-17. https://doi.org/ 10.3390/su13052661

Pröbstl-Haider, U., Hödl, C., Illing, K., Ranzi, R. & Fritz, O. (2021). Indooraktivitäten und damit zusammenhängende Einrichtungen. In Pröbstl-Haider, U., Lund-Durlacher, D., Olefs, M. & Prettenthaler, F. (Eds.), *Tourismus und Klimawandel* (157-168). Springer Spektrum.

Qureshi, M., Hassan, M., Hishan, S. S., Rasli, A. M. & Zaman, K. (2017). Dynamic linkages between sustainable tourism, energy, health and wealth: Evidence from top 80 international tourist destination cities in 37 countries. *Journal of Cleaner Production*, 158, 143-155. https://doi.org/ 10.1016/j.jclepro.2017.05.001

Ridderstaat, J., Singh, D. & DeMicco, F. (2019). The impact of major tourist markets on health tourism spending in the United States. *Journal of Destination Marketing & Management*, 11, 270-280. https://doi.org/10.1016/j.jdmm.2018.05.003

Rodrigues, H., Brochoado, A. & Troilo, M. (2019). Listening to the murmur of water: essential satisfaction and dissatisfaction attributes of thermal and mineral springs. *Journal of Travel & Tourism Marketing*, 37(5), 649-661. https://doi.org/10.1080/10548408.2019.1633986

Salahodjaev, R., Sharipov, K., Rakhmanov, N. & Khabirov, D. (2022). Tourism, renewable energy and CO_2 emissions: evidence from Europe and Central Asia. *Environment, Development and Sustainability*, 24(11), 13282-13293. https://doi.org/10.1007/s10668-021-01993-x

Santos-Roldan, L., Castillo Canalejo, A., Berbel-Pineda, J. M., Palacios-Florencio, B. (2020). Sustainable Tourism as a Source of Healthy Tourism*. International Journal of Environmental Research and Public Health*, 17(15), 1-14. https://doi.org/ 10.3390/ijerph17155353

Sauvageot, E. P. (2020). Between Russia as producer and Ukraine as transit country: EU dilemma of interdependence and energy security. *Energy Policy*, 145, 1-13. https://doi.org/10.1016/j.enpol.2020.111699

Schönherr, S., Peters, M. & Kuscer, K. (2023). Sustainable tourism policies: From crisis-related awareness to agendas towards measures. *Journal of Destination Marketing & Management*, 27, 1-9. https://doi.org/ 10.1016/j.jdmm.2023.100762

Seow, A., Choong, Y., Choong, C. & Moorthy, K. (2022). Health tourism: behavioural intention and protection motivation theory. *Tourism Review*, 77(2), 376-393. https://doi.org/10.1108/TR-11-2020-0546

Silverman, D. (2006). *Interpreting Qualitative Data: Methods for Analyzing Talk, Text, and Interaction*. SAGE Publications.

Silvestri, C., Aquilani, B. & Ruggieri, A. (2017). Service quality and customer satisfaction in thermal tourism. *The TQM Journal*, 29(1), 55-81. https://doi.org/10.1108/TQM-06-2015-0089

Shokri Garjan, H., Paydar, M. & Divsalar, A. (2023). A sustainable supply chain for a wellness tourism center considering discount and quality of service*. Expert Systems with Applications*, 211, 1-18. https://doi.org/10.1016/j.eswa.2022.118682

Sofi, A. A., Bhat, M., Ahmad, L., Aara, R. R. & Awani, R. (2022). Renewable energy and transitioning towards sustainable tourism: Interferences from kernel density and nonparametric approach. *Renewable Energy*, 193, 963-975. https://doi.org/10.1016/j.renene.2022.04.132

Steirische Thermenvielfalt. (n.d.). Thermen- & Vulkanland Steiermark. Called up on 23. February 2023 from https://www.steiermark.com/de/Thermen-Vulkanland/Region/Thermen

Stoddard, J. E., Pollard, C. E. & Evans, M. R. (2012). The Triple Bottom Line: A Framework for Sustainable Tourism Development. *International Journal of Hospitality and Tourism Administration*, 13(3), 233-258. https://doi.org/10.1080/15256480.2012.698173

Strasdas, W. (2017). Einführung Nachhaltiger Tourismus. In Rein, H. & Stradas, W. (Eds.), *Nachhaltiger Tourismus: Einführung* (13-44). UVK Verlagsgesellschaft mbH.

Suchanek, A., Link-Hi, N., Dautzenberg, N., Möhrle, M. G., Specht, D., Dennerlein, B., Leymann, F. & Nowak, A. (2021). Nachhaltigkeit. In *Wirtschaftslexikon Gabler*. Called up on 8. February 2023 from https://wirtschaftslexikon.gabler.de/definition/nachhaltigkeit-41203/version-384781

Sutton, J. & Austin, Z. (2015). Qualitative Research: Data Collection, Analysis, and Management. *The Canadian Journal of Hospital Pharmacy*, 68(3), 226-231. https://doi.org/10.4212/cjhp.v68i3.1456

Suzuki, L. (1999). *Using Qualitative Methods in Psychology*. SAGE.

Szromek, A. R. (2021). The Sustainable Business Model of Spa Tourism Enterprise – Results of Research Carried Out in Poland. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 1-19. https://doi.org/10.3390/joitmc7010073

Szromek, A. R., Puciato, D., Markiewicz-Patkowska, J. I. & Colmekcioglu, N. (2023). Health tourism enterprises and adaption for sustainable development. *International Journal of Contemporary Hospitality Management*, 35(1), 1-25. https://doi.org/10.1108/IJCHM-01-2022-0060

Teng, C-C., Horng, J-S., Hu, M-L., Chien, L-H. & Shen, Y-C. (2012). Developing energy conservations and carbon reduction indicators for the hotel industry in Taiwan. *International Journal of Hospitality Management*, 31(1), 199-208. https://doi.org/10.1016/j.ijhm.2011.06.006

Thermen in Österreich und Nachbarländern. (n.d.). Thermen. Called up on 23. February 2023 from https://thermen.at/thermen

Trung, D. N. & Kumar, S. (2005). Resource use and waste management in Vietnam hotel industry. *Journal of Cleaner Production*, 13(2), 109-116. https://doi.org/10.1016/j.jclepro.2003.12.014

Unser Leitbild. (2022). Thermen- & Vulkanland Steiermark. Called up on 18. November 2022 from https://www.steiermark.com/de/Thermen-Vulkanland/B2B-und-Presse/Leitbild

Urlaub in der Steiermark. (n.d.). Steiermark. Called up on 23. February 2023 from https://www.steiermark.com/de/Steiermark

Valeriani, F., Margarucci, L. M. & Spica, V. R. (2018). Recreational Use of Spa Thermal Waters: Criticisms and Perspectives for Innovative Treatments. *International*

Journal of Environmental Research and Public Health, 15(12), 1-22. https://doi.org/10.3390/ijerph15122675

Vaughan, A. (2022). The first global energy crisis. *New Scientist*, 253(3379), 18-21. https://doi.org/10.1016/S0262-4079(22)00513-9

Veal, A. (2018). *Research Methods for Leisure and Tourism*. Pearson.

Wang, T-C., Tseng, M-L., Pan, H-W., Hsiau, C-C., Tang, T-W. & Tsai C-L. (2021). The development of sustainable wellness service marketing strategy in Taiwan based on consumer eye movements and preferences. *Journal of Cleaner Production*, 282, 1-10. https://doi.org/10.1016/j.jclepro.2020.124382

Wang, W-C. & Lin, C-H. (2021). A Model for Sustainable Tourism Development of Hot Spring Destinations Following Poverty Alleviation: Understanding the Tourists' Perspective. *Sustainability*, 13(17), 1-14. https://doi.org/10.3390/su13179856

Zhou, X-Y., Lu, G., Xu, Z., Yan, X., Khu, S-T., Yang, J. & Zhao, J. (2023). Influence of Russia-Ukraine War on the Global Energy and Food Security. *Resources, Conservation and Recycling*, 188, 1-12. https://doi.org/10.1016/j.resconrec.2022.106657

Zuk, P. & Zuk, P. (2022). National energy security or acceleration of transition? Energy policy after the war in Ukraine. *Joule*, 6(4), 709-712. https://doi.org/10.1016/j.joule.2022.03.009

Annex

Annex 1 [Interview Guide]

NACHHALTIGER TOURISMUS WÄHREND EINER ENERGIEKRISE

Herausforderungen für Thermen im Thermen- & Vulkanland Steiermark

ALLGEMEINE INFORMATIONEN

- Datum des Interviews:
- Befragte/r:
- Standort:

INFORMATIONEN FÜR DIE/DEN BEFRAGTE/N

Der Inhalt dieses Interviews wird als Quelle für die Analyse und Interpretation in der Masterarbeit von Kathrin Groß, Studentin des Masterstudiengangs *Marketing* an der Fachhochschule – IMC FH Krems, verwendet.

Ziel der Masterarbeit ist es, neue Erkenntnisse über nachhaltigen Thermaltourismus im Thermen- & Vulkanland Steiermark in Zeiten einer Energiekrise zu finden. Im Rahmen der Forschung soll zudem herausgefunden werden, welche Maßnahmen von Thermen umgesetzt werden, um nachhaltiger zu werden und welche Herausforderungen dadurch auftreten. Überdies werden die Auswirkungen einer Energiekrise auf die nachhaltige Entwicklung von Thermen analysiert sowie wie Thermalbetriebe versuchen, diesen Herausforderungen entgegenzuwirken.

Zu Transkriptionszwecken wird das Interview aufgezeichnet. Die von Ihnen bereitgestellten Daten werden pseudonymisiert und ausschließlich zum Zwecke der Durchführung und Publikation der Masterarbeit verwendet. Transkripte sowie Aufzeichnungen des Interviews werden sicher aufbewahrt und ein Jahr nach Abgabe der Arbeit unwiderruflich gelöscht.

Ich wurde über den Zweck des Interviews informiert und bin mit den oben genannten Punkten sowie den Informationen zur Erhebung und Verarbeitung personenbezogener Daten einverstanden.

Datum & Unterschrift Interviewpartner

Einleitung

Vielen Dank, dass Sie sich die Zeit genommen haben, an diesem Interview teilzunehmen und dass Sie bereit sind, Ihre Gedanken zu den folgenden Fragen mit mir zu teilen. Wie bereits erwähnt, soll dieses Interview dazu dienen, die Forschungsfragen meiner Masterarbeit zu beantworten, die ich zum Abschluss meines Masterstudiums an der IMC FH Krems einreichen werde. Das Thema meiner Arbeit lautet: *Nachhaltiger Tourismus während einer Energiekrise – Herausforderungen für Thermen im Thermen- & Vulkanland Steiermark*. Sollten Sie nicht sicher sein, worauf sich die einzelnen folgenden Fragen beziehen, können Sie gerne jederzeit nachfragen. Außerdem möchte ich noch erwähnen, dass dieses Interview zu Dokumentationszwecken aufgezeichnet wird. Sind Sie bereit mit dem Interview zu beginnen?

1. Können Sie sich bitte in wenigen Worten vorstellen und Ihre berufliche Tätigkeit kurz beschreiben?

Bedeutung Thermaltourismus für die Region

2. Welche Bedeutung haben Thermen des Thermen- & Vulkanlands für den Tourismus in der Region?

Nachhaltiger Tourismus

3. Was verstehen Sie unter dem Begriff „Nachhaltiger Tourismus“?
4. Welche Bedeutung hat nachhaltiger Tourismus für Thermen im Thermen- & Vulkanland?
5. Wie werden die Dimensionen der Nachhaltigkeit (Ökologie, Soziales & Ökonomie) in Thermen der Region umgesetzt?
6. Was braucht es, um den Thermaltourismus im Thermen- & Vulkanland nachhaltiger zu gestalten?
7. Wo liegen Ihrer Meinung nach die Stärken und Schwächen der Thermen des Thermen- & Vulkanlands bezüglich nachhaltigen Tourismus?
8. Welche Maßnahmen zur Förderung von nachhaltigem Tourismus wurden in den Thermen der Region in den letzten Jahren umgesetzt?
    a. Welche Maßnahmen werden aktuell umgesetzt?
    b. Welche Maßnahmen sind künftig geplant?

9. Mit welchen Herausforderungen sind Thermen im Thermen- & Vulkanland konfrontiert, wenn sie versuchen nachhaltiger zu werden?
10. Konnten Thermen der Region positive oder negative Veränderungen nach Implementierung der nachhaltigen Maßnahmen feststellen?
    a. Welche waren diese?

Energiekrise

11. Welche Auswirkungen hat die Energiekrise auf Thermen im Thermen- & Vulkanland?
12. Welche Maßnahmen mussten auf Grund der Energiekrise von den Thermen der Region gesetzt werden?
13. Wofür wird in Thermen am meisten Energie benötigt?
14. Hoher Energiebedarf kann durch Erhöhung der Energieeffizienz gesenkt werden (wie z.B. durch effiziente Beleuchtung oder Nutzung von erneuerbaren Energien). Setzen Thermen in der Region so etwas um?
    a. Wenn ja: Wie wird versucht den Energiebedarf zu senken?
    b. Wenn nein: Was hindert Thermen davor?
15. Wurden auch vor dem Auftreten der Energiekrise Energiesparmaßnahmen in den Thermen gesetzt?
    a. Wenn ja: Welche?
    b. Wenn nein: Welche Gründe haben dagegengesprochen?
16. Mit welchen Herausforderungen sind Thermen der Region konfrontiert, wenn sie versuchen während der Energiekrise nachhaltiger zu werden?
17. Welche Auswirkungen hat die Energiekrise auf künftige Investitionen im Bereich der Energieeffizienz und Nachhaltigkeit?

Abschluss

18. Welche Rolle spielen Thermen für einen nachhaltigen Tourismus im Thermen- & Vulkanland Steiermark während einer Energiekrise in Ihren Augen?
19. Haben Sie weitere Fragen oder gibt es etwas, was Sie dem Interview noch gerne hinzufügen möchten, vielleicht ein wichtiges Thema, das Sie in diesem Kontext vermisst haben?

Annex 2 [Coding Tree]