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Ski Destinations and DMO Responses to Climate Change from a Resilience Perspective - A Case Study of Niseko, Japan

気候変動に対するスキー観光地と DMO の対応に関するレジリエンス視点からの考察―日本のニセコエリアを事例として

Xi Zhao

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Publications

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This study is part of the thesis in Chapter 7 and Chapter 9.

Abstract

Categorized as a gradual crisis, climate change poses significant challenges to the resilience of ski destinations. This vulnerability necessitates adaptation strategies beyond snowmaking and addressing multiple destination stakeholders, including Destination Management Organizations (DMOs), which are considered to take leadership in responding to climate change. Grounded in a social-ecological resilience approach and through a case study of the Niseko Area in Japan, this research aims to investigate, in the face of climate change, the organizational resilience of Destination Management Organizations (DMOs), their roles in enhancing destination resilience, and how destination resilience can be strengthened from the perspectives of multiple stakeholders within a ski destination.

The findings of this study suggest that the organizational resilience of the Niseko Promotion Board (NPB), the local DMO, can be constrained by its core functions. In addition, the NPB adapts to climate change through these functions and takes a reactive gesture to climate change. Concerning possible barriers to organizational resilience, external elements were underscored, including environmental stewardship as well as a lack of public awareness about climate change. Furthermore, the role of the NPB appears to be supportive and responsive in enhancing destination resilience. Although the NPB's role as a coordinator for various stakeholders is emphasized, the leadership of governments at different scales is required. From the perspectives of multiple stakeholders, while some grassroots decarbonization actions such as increasing public transport were mentioned, raising public awareness emerges as the only collective action required across all levels of stakeholders. Moreover, local governments are identified as the key stakeholders who should take climate initiatives. In addition to theoretically addressing the research gap, this research serves as a guidebook for destinations similar to the Niseko Area to formulate strategies that integrate diverse stakeholders, particularly local DMOs, in responding to future climate change.

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Chapter 1 Introduction

1.1 Background

The Intergovernmental Panel on Climate Change (IPCC), in its Sixth Assessment Report (AR6, 2023), synthesized the growing evidence across various natural systems, indicating that global climate change is already underway. World Tourism Organization (UNWTO) (2008) also pointed out that the tourism industry and destinations exhibit sensitivity to climate variability and ongoing climate change. Winter tourism destinations have been identified as especially vulnerable to climate change because of their high climate sensitivity, economic and cultural importance in some areas (Dawson & Scott, 2010). From an operational perspective, the key risks to the ski industry include reduced natural snow reliability, increasingly variable and shortened ski seasons, increased snowmaking requirements, and a likely decrease in the number of operating ski resorts (Scott, Hall, et al., 2012a).

In response to these climate change impacts, ski operators have adopted various adaptation strategies. According to Intergovernmental Panel on Climate Change (2007), adaptation refers to the process through which socioeconomic systems adjust to respond to present or projected climate stimuli and their potential positive or negative consequences. In the context of ski tourism, scholars have examined adaptation from both demand and supply sides. From the demand side, adaptation comprises temporal substitution, spatial substitution, and activity substitution (Cocolas et al., 2016; Scott, Hall, et al., 2012b). From the supply side, according to Scott, Hall, et al. (2012b), snowmaking has been widely used in some ski tourism markets for over 20 years, and ski destination operators have implemented additional adaptation measures, such as diversity of products and all-year-round operation beyond snowmaking. However, given the focus of this research, primary emphasis is placed on supply-side while demand side adaptation will not be explored in detail.

Scott, Hall, et al. (2012b) identified two main research objectives within extensive literature of destination-scale adaptation case studies. The first group focuses on engaging various stakeholders through participatory approaches (e.g., workshops, focus groups) to rank adaptation options for future

implementation. With the growing emphasis on sustainable development of destinations, some studies, such as the Swiss case study carried out by Moser & Baulcomb (2020), have begun to assess adaptation measures based on their contribution to long-term destination sustainability. The second type of research, according to Scott, Hall, et al. (2012b), investigates tourism stakeholders' awareness of climate change, their capacity to respond to climate change impacts, as well as possible determinants of adaptation actions (Scott, Hall, et al., 2012b). Related studies include those of Hopkins (2014) and Hopkins & Maclean (2014). There is also research combining these two approaches recently, such as research carried out by Knowles & Scott (2024), who explored multi-stakeholders' perceptions of climate change risks as well as elements impacting climate responsiveness through participatory multi-stakeholder approaches.

This research aligns with this second group of research. Specifically, the maximum snow depth data from 1960 to 2020 shows that the Niseko area in Hokkaido, Japan, where the case study of this research was carried out, has not yet been deeply impacted by climate change (Niseko Town, 2021). Therefore, it is appropriate to explore stakeholders' perceptions regarding potential future climate change and investigate how they may respond.

A primary research gap can be highlighted here: existing studies in this second category often focus on ski business operators, tourism business employees, as well as local tourism officers, etc. (e.g., Hopkins & Maclean, 2014). Destination Management Organizations (DMOs), identified as one of the key tourism stakeholders (Bornhorst et al., 2010), have rarely been taken into account. Furthermore, perceived adaptation options are mainly associated with those initiated by ski businesses such as snowmaking and diversified products (e.g., Cholakova & Dogramadjieva, 2023). Perceptions regarding adaptive actions taken by other stakeholders remain largely overlooked. Addressing this gap and extending the existing body of research therefore constitutes one of the central contributions of this study.

Evolving from the original concept of "Destination Marketing Organizations" with an emphasis on its marketing function (Presenza et al., 2005; Sheehan et al., 2016; Wang, 2011b),

Destination Management Organizations (DMOs) are conceptualized as one of the key destination stakeholders as mentioned above. However, with the involvement of DMOs in destination development and planning, their roles go beyond pure marketing function and move towards a management role (A. M. Morrison et al., 1997; Pike, 2004, 2005; Presenza et al., 2005; J. R. B. Ritchie & Crouch, 2003), which can explain the shift from the Destination Marketing Organization to Destination Management Organization (below, DMOs refers to Destination Management Organization). In terms of DMOs' roles, while specific roles attributed to DMOs vary across destination management literature (Pearce, 2016), Presenza et al. (2005) classified them into two categories: external destination marketing roles, which include all kinds of strategic marketing activities, and internal destination development roles, which encompass all other activities contributing to tourism development in destinations. Given the focus on the sustainability of destinations and the urgency for destinations to cope with climate change, DMOs will increasingly be positioned at the forefront of efforts to advance sustainable tourism (A. M. Morrison, 2023) and play a central role in climate adaptation and mitigation strategies at a destination level (Bhandari et al., 2015). However, as previously noted, there appears to be a dearth of research concentrating on DMOs' roles in destinations' adaptation to climate change. In addition, few studies have explored the interactions between DMOs and other stakeholders, which are embedded in stakeholder theory and can contribute to the adaptation of whole destinations to climate change. This research also aims to bridge this gap.

Moreover, climate change has been conceptualized as a slow-onset process with slow change speed and a large impact scale (Lew, 2014). In the face of such inevitable changes, resilience emerges as an effective approach to destination development (Lew, 2014). The resilience theory became a tourism research topic in pre-1990, and related research increased largely from 2010 (Hall et al., 2023). In the tourism field, Jopp et al. (2010) argue that tourism, as a sector highly dependent on natural resources, is inevitably exposed to external pressures such as natural hazards and climatic shifts. Consequently, destinations must be adequately prepared to manage these risks by reducing vulnerabilities and adopting appropriate measures (Jopp et al., 2010). In resilience theory, vulnerability

refers to “the susceptibility of a system to disturbances determined by exposure to perturbations, sensitivity to perturbations, and the capacity to adapt” (Nelson et al., 2007, p.396). Adaptation, in turn, describes “the decision-making process and the set of actions undertaken to maintain the capacity to deal with current or future predicted change” (Hall et al., 2018, p.13). Taken together, these perspectives suggest that destinations should mitigate vulnerability and carry out adaptation to deal with the adverse impacts of climate change. Furthermore, given the focus of sustainability, Espiner et al. (2017) argue that tourist destinations cannot be sustainable without being resilient.

Before moving to organizational resilience and destination resilience, the social-ecological approach, one of the basic approaches widely adopted in destination resilience research (Hall et al., 2018c) is introduced here. This approach acknowledges the interactions between ecological and social systems (Berkes, 2007) across time and scale (Gunderson & Holling, 2002) compared with engineering resilience, which emphasizes the ability to return to an original state, shown as the response to short-term environmental change (Hall et al., 2023). The current research is also grounded in this approach as it focuses on how destination resilience can be enhanced from multiple stakeholders’ perspectives, representing interactions at different scales.

Regarding organizational resilience, this study mainly explores the organizational resilience of DMOs. Organizational resilience is generally described as the capacity of organizations to survive and adapt to crises (Fiksel, 2006). It is worth noting that organizational resilience of DMOs focuses more on “design for adaptation” (Boin et al., 2010) than “agency survival” (Adam et al., 2007; Lewis, 2002) under a crisis scenario, considering that DMOs are often public or public-private agencies (Hall et al., 2018b). In addition, existing literature concerning DMOs’ organizational resilience to crises remains limited and focuses predominantly on short-term crisis management. This scarcity underlines the significance of this study, which investigates the organizational resilience of DMOs to climate change.

With respect to destination resilience, despite consistency among its definitions, destinations should mitigate vulnerabilities and increase adaptive capacity to respond to short-term crises as well as gradual change such as climate change, as noted above. Based on social-ecological approaches, several

frameworks have been developed, such as the sphere of tourism resilience by Cochrane (2010), destination sustainability framework by Calgaro et al. (2014). Among these frameworks, the framework of destination resilience from multilevel perspectives proposed by Amore et al. (2018) serves as a theoretical base for this study. The reason is that this framework highlights that resilience of stakeholders at different scales contributes to destination resilience, corresponding to the focus of this study on actions initiated by various stakeholders as well as their interactions. Besides, it is important to emphasize the difference between organizational resilience of DMOs and destination resilience in DMOs' organizational resilience dimensions. In light of the discussion of Hall et al. (2018c) about these two topics of this research, it can be concluded that the former emphasizes the adaptation of DMO itself to climate change, while the latter highlights the roles of DMOs in enhancing destination resilience.

Existing literature on destination resilience and organizational resilience reveals a clear research gap. First, there is currently no literature addressing DMOs' organizational resilience to climate change. Second, although there is a good proportion of literature on the issues of climate change (e.g. Bhandari et al., 2015; Becken, 2013; Biggs et al., 2015), few have addressed climate change from the perspectives of multiple stakeholders. Moreover, ski destinations have received relatively little attention in destination resilience research from a social-ecological resilience perspective. While some studies have indeed explored the efficiency of snowmaking under future emissions scenarios to investigate climate change adaptation at a destination level (e.g. Knowles et al., 2024), these studies were rooted more in engineering resilience, which emphasized the "bounce back" to the original state (B. Smith et al., 2008). These two research gaps underscore the significance of the present study. Addressing all research gaps mentioned here, the research purposes are as follows.

1.2 Research Purpose and Research Questions

This research aims to investigate, in the face of climate change, the organizational resilience of DMOs, their roles in enhancing destination resilience, and how destination resilience can be

strengthened from the perspectives of multiple stakeholders within a ski destination through a case study of the Niseko area. Despite the substantial contribution of air travel to tourism's carbon footprint (Lenzen et al., 2018; Scott et al., 2010) and the fact that all destinations remain anchored in carbon-intensive transportation systems (Knowles & Scott, 2024), this research limits its scope to the perceived adaptation by local stakeholders. Moreover, a case study of the Niseko area in Hokkaido, Japan was carried out to realize this research purpose. And one of the research purposes is related to the organizational resilience of DMOs. The Niseko Promotion Board (NPB), which is an inter-municipal DMO (Japan Tourism Agency, 2024b) comprising Niseko Town, Kutchan Town, and Rankoshi Town, was targeted. Based on the research purpose, the following research questions (RQ) will be answered. At the same time, Figure 1-1 is used to show the relations between the main research objectives of this study as well as the research questions.

RQ1: How is the organizational resilience of the NPB evaluated in the face of climate change and what are the possible barriers impeding it?

RQ2: What are the roles of the NPB in enhancing destination resilience of Niseko to climate change?

RQ3: How is destination resilience to climate change perceived by multiple stakeholders and what strategies can effectively enhance this resilience?

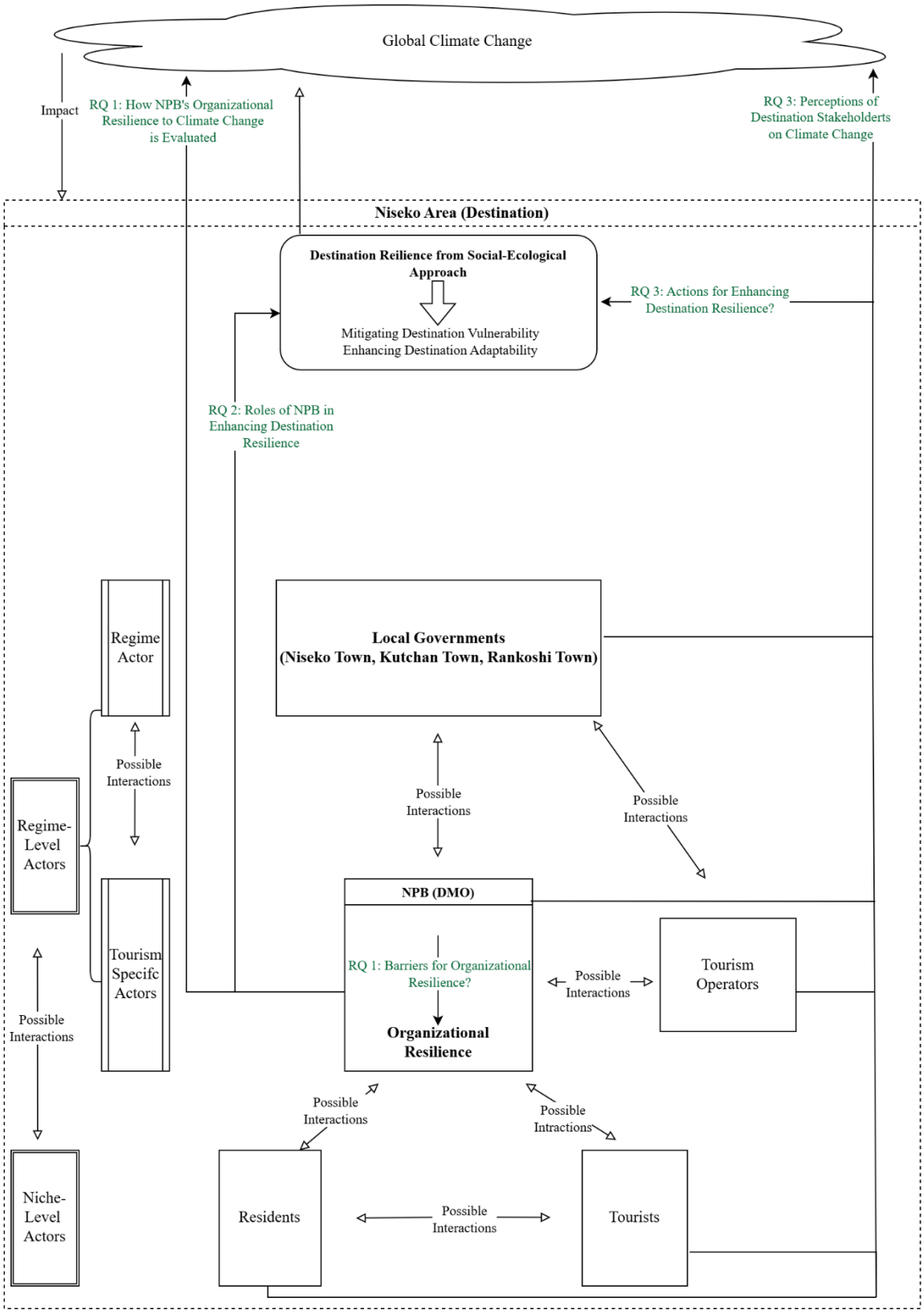


Figure 1-1 Research construct and research question

Source: Author

1.3 Research Significance

The significance of this research lies in addressing theoretical and empirical research gaps identified in previous studies. Theoretically, this research is grounded in social-ecological resilience thinking, which acknowledges the interactions of different systems within destinations and their possible contribution to destination resilience. Consequently, this research explores not only the perception of multiple stakeholders of destination vulnerability and adaptation to climate change but also investigates possible interactions among stakeholders or strategies to strengthen these interactions to enhance destination resilience to climate change based on the multi-stakeholder framework of destination resilience developed by Amore et al. (2018). Limited research concerning ski destination resilience to climate change identifies the significance of this study in this dimension. Besides, Bosomworth & Gaillard (2019), Krauß (2020) and Lich & Kuhlberg (2020) underlined the value of knowing personal, which is non-scientific, local, and experience-based, in pluralistic understanding of risk, promoting collective learning and giving rise to new solutions. Although this argument is not strictly in the resilience dimension, it also reveals the significance of this study, which explores the perception of multi-stakeholders. In addition, as noted above, DMO organizational resilience has been addressed by few studies, and a significant dearth appears in the literature related to DMO organizational resilience to climate change. This research provides insight into DMO organizational resilience to gradual change and identifies possible barriers, thus enriching the existing literature on DMO organizational resilience.

Empirically, from the perspective of ski destinations' adaptation to climate change, previous studies mainly focused on initiatives launched by ski businesses, while this research investigates perceived adaptation taken by other stakeholders by means of qualitative methods such as semi-structured interviews and content analysis. In addition to broadening the scope of research related to ski destinations' adaptation to climate change, the conclusion drawn from the qualitative findings offers a robust empirical validation for the framework of Amore et al. (2018). Furthermore, as

mentioned above, DMOs play significant roles in tackling climate issues of destinations (Knowles & Scott, 2024). However, only several studies have paid attention to this topic. This research fills this research gap by concentrating on DMO's roles in enhancing destination resilience to climate change. Besides, studies associated with Japanese ski destinations and climate change remain relatively scarce, proved by Steiger et al. (2019). This study carried out a case study in the Niseko area of Hokkaido, Japan. The findings and derived conclusions provide an understanding of Japanese cases once the literature was categorized by country.

1.4 Personal Reflexivity

Qualitative research requires researchers to reflect on their active roles in guiding and shaping their studies (Lincoln & Guba, 2018). Consequently, researchers' individual backgrounds and unique worldviews fundamentally influence their conceptualization and interpretation of the observed social phenomena (Rossman & Rallis, 2017). Therefore, this study is also influenced by my personal and academic experiences, which are briefly outlined next.

I grew up in China but moved to France in 2012 to pursue my bachelor's and master's degrees. In 2015, during the UN Climate Change Conference (COP 21) in Paris, where the historic Paris Agreement was signed, I participated in various events along the Avenue des Champs- Élysées advocating for public action to mitigate climate change. At the time, my primary reflection was simply that these activities were interesting and that we should do something to stop global warming. This experience marked my initial connection to the issue of climate change.

My academic interest in climate change and ski destinations is rooted in my personal experiences living in Hokkaido, combined with my doctoral studies concerning DMOs and resilience thinking. While living in Sapporo, Hokkaido, I observed the immense popularity of ski tourism, driven by the region's high-quality powder snow. At the same time, my reading of official reports from international organizations, such as climate change and tourism – responding to global changes issued by the World Tourism Organization (2008), made me aware of the severe threats climate change poses

to the tourism sector. This prompted me to consider the future: what will happen if natural snow disappears? Will destinations like those in Hokkaido survive? Although I am not a skier myself, I grew concerned that the impacts of climate change might deprive future generations of the opportunity to experience this sport. This concern ultimately inspired me to select climate change and the adaptation of ski destinations as the primary focus of my doctoral research.

Furthermore, upon entering my doctoral program, I deepened my understanding of DMOs and their critical functions. I learned that DMOs play a dual role in destination marketing and management and are instrumental in achieving destination sustainability. This realization stimulated my thinking regarding the specific role of DMOs in how destinations adapt to climate change. Additionally, while reviewing the literature on resilience approaches in tourism, I discovered that snowmaking, which is widely used by American and European ski destinations to adapt to climate change, primarily enhances engineering resilience of destinations. I noted a lack of research focusing on the social-ecological resilience of ski destinations in the face of climate change. Ultimately, the interactions between the crucial role of DMOs and the gap in literature regarding socio-ecological resilience of destinations sparked my academic curiosity and motivated me to plunge into this research topic.

1.5 The Structure of the Study

The study is organized in ten chapters. Chapter 1 briefly introduces the background of this research, including global climate change, the ski destinations' adaptation, as well as the key destination stakeholder-DMOs. Resilience thinking is also shortly presented. Along with this background introduction, research gaps are identified, which lead to research purposes, research questions, as well as research significance. Personal reflexivity is then represented to show how the background of research influences the choice of this study. In addition to Chapter 1, the remainder of the research is organized as follows:

Chapters 2 to 4 provide insight into "what" (Chapter 2) will face which challenges (Chapter 3) and, when addressing this, the research is rooted in which theoretical works (Chapter 4). In detail,

Chapter 2 presents the concept of destinations and the derived concept: destination management, which underscores the importance of managing different relationships. The stakeholder theory is then elaborated on. Stakeholders constitute the origins of different relationships and interests in destinations. Stakeholder theories highlight the importance of cooperation among stakeholders for gaining collective interests but also for dealing with challenges that individual stakeholders are hard to tackle. DMO, the main object of this research, is then examined, including the evolution of its concepts as well as its main roles.

Chapter 3 addresses global climate change. Its direct and indirect impacts are examined. The scope is then narrowed to climate change impacts on ski destinations, which are also the primary objects of this research. Snowmaking capabilities as well as different scenarios are important elements that influence impact assessments. The ski industry adaptations are then revised, demonstrating that snowmaking is still the primary adaptive measure to climate change, accompanied by diversified tourism products and year-round operation of destinations. The DMOs' roles in destination sustainability and in adapting to climate change are subsequently elaborated on. Discussion mainly revolves around whether DMOs should assume this responsibility and their specific roles when addressing climate issues.

Chapter 4 outlines the resilience theory, especially organizational resilience and destination resilience, which are tightly associated with the topics of this research. The social-ecological approach is widely adopted in destination resilience which emphasizes the interconnection between different systems as well as their learning capacity. Limited literature concerning DMOs' roles in enhancing destination resilience to climate change is reviewed. As to organizational resilience, few literatures has focused on that of DMOs, and the majority of them paid attention to sudden crises. A revision of relevant studies is also carried out to provide insight for this research, which focuses on climate change.

Chapter 5 describes the methodology of this research. Research paradigm is first presented to show how the world is perceived by this study. Research design is then elaborated on. The rationale

and disadvantages of case studies are discussed, followed by a detailed introduction of the Niseko area by means of demographic and employment data. The procedure of collecting and analyzing primary and secondary data is then introduced, including its rationale and disadvantages, respectively.

Chapters 6,7, and 8 show the findings of primary and secondary data analysis. Chapter 6 provides an insight into the perception of organizational resilience of the NPB (locally regional DMO) as well as the roles of the NPB in enhancing destination resilience. Through a detailed narrative provided by the interviewees, it can be concluded that the organizational resilience of the NPB is quite limited to its core functions, and the roles of the NPB in strengthening destination resilience remain supportive and responsive, in contrast to a proactive gesture contended in previous studies in the face of sudden crises.

Chapter 7 presents the climate change impacts, current actions, and anticipated actions perceived by ten stakeholders. Climate change has been widely perceived and identified as vulnerability includes a lack of awareness among residents and tourists. Concerning actions, decarbonization actions related to energy have been considered to be taken, while in the future, leadership and initiatives related to awareness-raising are expected by the stakeholders for local governments.

Chapter 8 focuses on content analysis of secondary data, including official documents issued by local governments as well as newspaper coverage. The findings based on documents are presented first, and then findings based on newspaper coverage are introduced. A synthesized summary is also added to draw the key insights from the findings. It can be found that there is a Difference between component towns' attention to climate issues.

Chapter 9 presents the discussion centering on DMOs' organizational resilience, DMOs' roles in enhancing Niseko destination resilience, as well as perceptions of stakeholders at multi-levels. The factors that can impact the NPB's organizational resilience are first introduced, and then its roles in enhancing destination resilience are explored. Comparison with revised literature is also carried out. Besides, climate change as well as vulnerability perceived by all interviewees (ten stakeholders and

three NPB directors) are discussed, and a figure demonstrating interactions and crucial future actions to enhance destination resilience has also been drawn.

Chapter 10 draws final conclusions by revisiting research purposes and questions. The contribution of this research, including theoretical and practical ones, is then discussed. In the last section, possible directions of future studies are elaborated on by the researcher to inspire readers and other researchers.

Chapter 2 Literature Review: Destination Management and Destination Management Organization (DMO)

This chapter primarily conceptualizes three fundamental elements in tourism studies: destinations and destination management, stakeholders and stakeholder theory, and DMOs and their roles. Although each concept has been extensively researched, this review focuses exclusively on insights relevant to the current research. Section 2.1 explores the concept of destination and destination management, underlining the importance of managing different relationships and aligning public and private goals within complex and dynamic destinations. Section 2.2 centers on stakeholders and stakeholder theory, highlighting the necessity of stakeholder cooperation to achieve collective benefits and confront challenges that individual actors cannot tackle alone. Finally, Section 2.3 addresses the key entity of this research: the Destination Management Organization (DMO) and presents its primary functions. The organization is increasingly recognized as bearing responsibility for holistic destination management in addition to its traditional marketing function.

2.1 Destinations and Destination Management

2.1.1 The Concept of Destination

There are various discussions in the tourism literature concerning the concept of destination, establishing a single, standardized definition remains challenging due to the diverse interpretations and implications involved (Wang, 2011b). The concept originally derived from a traveler's perspective (Gunn,1972; Miossec, 1977; as cited in Reinhold et al., 2023). By the end of the 20th century, the destination had become a geographical concept (UNWTO, 2010) due to the incomplete understanding of complexity and dynamics of visitor flows across space, both among researchers and practitioners (Reinhold et al., 2023). From an administrative perspective, defining destinations geographically provides several advantages. A destination was therefore treated as an administratively bounded area within which activities can be measured and quantified. In addition, it enabled institutions and organizations such as Destination Management Organizations (DMOs) to analyze, influence, and even

control them (Buhalis, 2000). For managers, geographical and administrative boundaries shape their understanding of what defines a destination market competitiveness (Kaurav et al., 2015). However, other studies conclude that destinations can go beyond administrative boundaries. Pike (2008), for example, argues that rather than being defined by political boundaries, a destination is a geographical space where tourism resources are clustered. Similarly, Manente (2008) integrates a set of resources and actors into the definition of destination, conceptualizing it as a territory that can be a municipality or a sum of municipalities sharing homogeneous resources or functional interactions. The destination focused on in this study aligns with this perspective: the Niseko destination is composed of three neighboring towns, which are Niseko Town, Kutchan Town, and Rankoshi Town. The entire Niseko area benefits from the homogeneous natural resources, most notably its powder snow (Japan Tourism Agency, 2024a).

In addition to geographical representation, destinations, perceived as "the fundamental unit of analysis of tourism" (WTO, 2002, as cited in Pike & Page, 2014), have also social significance and are explored from different perspectives (Leiper, 1979). One of the approaches is the distinction between demand-side and supply-side perspectives. From a demand-side perspective, a destination is perceived as a tourism product competing in the marketplace, and its evaluation depends on expectations of visitors before visiting and satisfaction after their visits (Bieger, 1991). However, as this study mainly focuses on multiple stakeholders within destinations, which is inbound-oriented (Laesser & Beritelli, 2013), a discussion from demand-side centering on tourists is beyond the scope of this study.

From a supply-side perspective, destination is conceptualized as a local spatial construct (Laesser & Beritelli, 2013) which incorporates a set of resources as well as public and private actors (Manente, 2008). This is consistent with the arguments of Saraniemi & Kylänen (2010) and Bregoli & Del Chiappa (2013), who define destination as an action unit where different public and private stakeholders, such as public organizations and tourism businesses, interact. According to Manente (2008), public sectors perform pivotal functions in optimizing the utilization of tourism resources while ensuring an equitable distribution of economic outcomes among diverse stakeholders. Moreover,

they also act as intermediaries by facilitating the conditions necessary to overcome difficulties that hinder cooperation and networking among stakeholders. On the other hand, the private sector should preserve destinations while matching demand and supply through the provision of tourism products. A planning process incorporating the interests of diverse stakeholders should also be developed (Manente, 2008). Laesser & Beritelli (2013) make a similar point in their argument on destination management from the supply-driven side: destination management primarily involves planning within tourism-related areas and lobbying to represent the collective interests of all tourism stakeholders. Besides, residents constitute essential stakeholders. An example can be found in the study of Rasoolimanesh et al. (2015) who underlines that residents' perceptions significantly impact their support for tourism development.

Despite various dimensions through which a destination can be interpreted, this study adopts a supply-driven approach, as this research aims to clarify elements contributing to destination resilience from multiple stakeholders within the destination. Destinations are thus conceptualized here as territories which can extend beyond administrative boundaries, encompassing a set of resources and interactions among different stakeholders. Dredge (2018) further supports this conceptualization by emphasizing sets of interconnection and networking on multi-scales when defining destination. As previous studies state, public and private sectors and residents contribute to destination development in distinct ways, destination management can harmonize diverse interests of stakeholders and ensure their cooperation is thus necessary.

2.1.2 Destination Management

Connected with the evolution of the concept of destination, early research on destination management mainly emerged from geographical studies and was largely supply-oriented, with an emphasis on resource use and planning, such as Butler (1980) (Fyall & Garrod, 2019). The extant literature on destination management has evolved alongside two divergent and frequently contested trajectories (Hristov & Zehrer, 2015). One emphasized destination marketing (Pike & Page, 2014),

primarily with the promotion and selling of place (Harrill, 2009; Pike, 2004), while the other advances a broader management perspective (N. Morgan, 2012) that encompasses strategic planning and exercise of control, coordinating organizations and the effective utilization of destination resources (Mariani et al., 2014; OECD, 2013). The holistic approach to destination management, which states the application of a systematic and inter-disciplinary approach in destination studies, became increasingly established in the early 2000s and drove research investigating the relationships among destination stakeholders (Fyall & Garrod, 2019), particularly how aligning their interests can contribute to more effective management of the overall destination experience (Dredge, 2006). In other words, tourism management is considered an activity aiming to reconcile the interests of operators with those of the community, managing formal and informal relationships and aligning public and private goals (Fyall & Garrod, 2019). In addition, Destination Management Organizations (DMOs) which are perceived as the formal structure charged for carrying out destination management, have also recognized the necessity of adopting a more holistic approach (Morgan, 2012; Volgger & Pechlaner, 2014) as the relationship among government, industry and civil society is increasingly pivotal to the management and development of destinations (Kennell & Chaperon, 2013; Presenza & Cipollina, 2010). Furthermore, A. M. Morrison (2023) adopts a perspective of DMOs, equating destination management with the specific roles and functions of DMOs, including leading and coordinating, marketing, creating a suitable environment, and delivering services on the ground. The roles of DMOs will be discussed in Section 2.3.

Besides, destination governance has also increasingly appeared in tourism studies and appears related to destination management and destination development (Pechlaner et al., 2012). Beritelli et al. (2007) define destination governance as “the setting up and developing of rules and mechanisms for business strategies by involving destination stakeholders” (p.96). However, destination management focuses on the effectiveness of destination stakeholders’ interactions, which can be enhanced through cooperative planning and organizational activities, ultimately benefiting each individual stakeholder (Baggio et al., 2010). From the perspective of DMOs, Morrison (2023) claims that destination

governance is conceptualized as "…how a DMO is administered and who does the administrating" (p.26) and refers to policies, systems, and processes used to ensure the involvement of all stakeholders. DMOs thus play an important role in destination governance (Morrison, 2023) since they position themselves as a mediator between various interests within destinations for the "common cause" (Pechlaner et al., 2011).

Despite more and more attention being paid to destination governance, this study focused mainly on destination management. Based on the aforementioned definitions, destination governance centers on rules and regulations implemented within a destination to ensure stakeholders' involvement, while this study concentrates on how stakeholders within a destination interact to enhance destination resilience to climate change. The concept of stakeholders will be elaborated on in the next section.

2.2 Stakeholders Theory and Its Application in Destination Management

Within a global tourism context, the value of involving multiple stakeholders and leveraging their collective efforts is widely acknowledged and promoted (Quinlan et al., 2013). Freeman (1984) defines the concept of stakeholder as "any group or individual who affect, or is affected by, the achievement of a corporation's purpose" (p.6), which has been acknowledged by most studies about stakeholders (Quinlan et al., 2013). Before that, statements of stakeholder theory can be found in management literature on organization theory and interorganizational relationships (Sheehan & Ritchie, 2005). For example, Levine & White (1961) contend that when organizational objectives are aligned, it might be strategically reasonable for organizations to cooperate or participate in voluntary interactions that either directly or indirectly influence the achievement of their respective goals. Similarly, Waddock (1989) argues that collaborative relationships between organizations are rarely fully autonomous; instead, they tend to depend on a shared recognition of mutual interdependence, a consensus on the significance of the issue at hand, and a belief that meaningful benefits can be gained through joint action. Quinlan et al. (2013) point out that stakeholder theory has also been influenced by social partnership, inter-organizational collaboration, and collective agency approaches and has gone

beyond the dyadic perspective of Freeman (1984). This shift reflects a broader understanding of the motivations, structures, and activities involved in stakeholder engagement (Quinlan et al., 2013). The growth in collaboration between organizations also highlights an increasing recognition of stakeholder interdependence and the critical role that stakeholder collaboration plays in addressing challenges deriving from sectoral complexity and volatility (Fyall & Garrod, 2005).

Quinlan et al. (2013) prove that the application of the stakeholder concept to destination management is strongly acknowledged. As mentioned in the previous section, tourism destinations, viewed as clusters of interconnected product and service providers, encompass public and private stakeholders. Buhalis (2000) identified five core categories of tourism stakeholders which are tourism enterprises, public sector, government and municipal organizations, tour operators, the host population and tourists. Stakeholder influence on tourism arises not only from the interdependence of multiple product and service providers, but also from significant influence generating from political and societal stakeholders: administrative organizations affect tourism organizations by means of policy and resource inputs (Quinlan et al., 2013). Moreover, tourists and the public also significantly influence tourism actors. They both contribute to and benefit from tourism experiences, so they perceive themselves as affected by and entitled to participate in destination decision making (Quinlan et al., 2013). Tourism managers are tested to coordinate the dynamic interests, priorities and resource needs of diverse stakeholder groups as the success of a destination often hinges on how well these stakeholders are connected and how they cooperate and interact within the destination framework (March & Wilkinson, 2009).

While public and private stakeholders recognize their mutual interdependence, they often perceive limited capacity to influence one another directly, which frequently leads them to behave independently and prioritize their own interests (von Friedrichs Grängsjö, 2003). In line with the stakeholder theory, tourism organizations are expected to identify and engage with their own specific stakeholders. At the same time, there is a broader special exchange requirement that calls for collective stakeholder action across destinations to effectively respond to macro-level environmental challenges

(Quinlan et al., 2013). The reason is that, due to the aforementioned sectoral complexity and turbulence underlined by Fyall & Garrod (2005), especially in the tourism sector, firms have difficulty addressing macro-scale challenges such as climate change or sustainability (Quinlan et al., 2013). Besides, all destination stakeholders are considered to be responsible for shaping the extent and direction of tourism development (Haid et al., 2021). To deal with the challenges, tourism collaboration is indispensable, which is defined as a group of autonomous stakeholders engaged in joint objective setting and decision making, applying shared rules, norms, and structures to resolve problems or management issues related to the domain, here, the tourism (Jamal & Getz, 1995; Wood & Gray, 1991).

2.3 DMO and Its Roles

Destination Management Organization (DMO) is considered as one of the key actors in coordinating multiple stakeholders within destinations (Sheehan & Ritchie, 2005). However, with the involvement of DMOs in destination development and planning (Gretzel et al., 2006), their roles go increasingly beyond a pure marketing role to include destination management (A. M. Morrison et al., 1997; Pike, 2004, 2005; Presenza et al., 2005; J. R. B. Ritchie & Crouch, 2003). For example, in the late 1990s, Lenhart (1998) explored how DMOs, which are Destination Marketing Organizations in the case study, redefined themselves as the executives, were encountering a range of changes. In a later study, the author identified the elements contributing to DMOs' excellence, including profound knowledge of the destination represented, awareness of the latest changes affecting the destination, and proved the shift of roles of DMOs: from destination marketing to destination management (Lenhart, 1999). Gretzel et al. (2006) identified several management challenges that DMOs will deal with including adapting to technological change, managing expectations, confronting new levels of competition, recognizing creative partners as well as finding new measures of success. Recently, Katemliadis et al. (2025) proposed a transition of Destination Marketing Organizations to Destination Development Management and Marketing Organizations (DDMMOs) and underlined the pivotal role

of leadership that DMOs should take to guide stakeholders. For a destination, the leadership is needed to successfully implement destination strategies (Sorokina et al., 2022). DMOs are also considered to offer resources to develop new products and manage destinations (Katemliadis et al., 2025b).

Notwithstanding this shift, Pike & Page (2014) raise their concerns about referring to DMOs as Destination Management Organizations by some academics and argued that the term "management" implies control while most DMOs lack authority and the necessary resources to effectively manage the destination although stakeholders in the broader tourism industries (Leiper, 2008) often expect or emphasize such a role when challenges emerge, or leadership is required. The authors insisted that using the term Destination Management Organization confuses the perceived need for management, which should be overseen by other responsible bodies, such as government departments, conservation, etc., with the core marketing function that they primarily undertake (Pike & Page, 2014). Serra et al. (2017) make a similar point that DMOs can rarely fulfill their mission of management due to their deficiency of authority and control over the destination and tourist services and products. To summarize, a large number of literatures portrays a range of roles of DMOs and shows that marketing can be the principal function for DMOs, but they also gradually engage with destination development. In consideration of the context and research questions of this research, the acronym DMOs represents Destination Management Organizations below.

The form and structure of the DMO varies (Franch & Martini, 2002; J. R. B. Ritchie & Crouch, 2003) and is affected by the attributes of the external environment, meaning the region or municipality where the DMO is located (Atorough & Martin, 2012), but also the stakeholder composition and their dependency within the DMO (March & Wilkinson, 2009). The reason is that the actors composing the DMO represent key stakeholder groups in the destination, can control the most important resources, and then have a significant influence on the DMO (von Friedrichs Grängsjö, 2003). The DMO funding can also reflect its structure as well as its operation context (Presenza et al., 2005). Additionally, it is common to find that the public sector assumes a leading role in DMOs as enterprises easily lack resources and knowledge (Baggio & Cooper, 2010). Local municipal authorities

that have a leading role in DMOs, possess political and financial resources as well as control of cultural and infrastructural elements related to destination offers (March & Wilkinson, 2009). Their influence is due to the fact that they represent the residents, so they have both interests and responsibilities to maximize the collaborative benefits for all destination stakeholders (Quinlan et al., 2013). Thus, stakeholders play a significant role in DMOs' success (Foris et al., 2021), which contributes to successful and sustainable destination management leading to a successful destination (Almeida & Moreno-Gil, 2019).

DMOs are defined as "the leading organizational entity which may encompass the various authorities, stakeholders, and professionals and facilitates partnerships towards a collective destination vision" by UNWTO (World Tourism Organization, 2019, p.14). From a general perspective, DMOs are required to enhance the well-being of local residents, help visitors to have a highly satisfactory, even memorable visitation experience and provide effective destination management and stewardship (Bornhorst et al., 2010). Gartrell (1994) provided a detailed account of the main activities of DMOs, which include coordinating various actors involved in tourism to achieve a single voice for tourism, taking on leadership and advocacy roles for tourism within the local community and maintaining a visible presence to enable residents to recognize the value of the visitor economy. Additionally, DMOs ensure the development of tourism facilities, attractions as well as the destination image to support and secure its competitive position, and act as important liaisons to assist external organizations in bringing visitors to the destination (Gartrell, 1988).

Over the past twenty years, several researchers have carried out a classification of roles of DMOs. Presenza et al. (2005), for example, classify the roles of DMOs into two categories based on the model of destination competitiveness and sustainability of J. R. B. Ritchie & Crouch (2003): external destination marketing, concretized by strategic marketing activities such as image definition, branding and position, internal destination development, encompassing all other activities contributing to tourism development in the destination. Pechlaner et al. (2012) hold similar points of view and suggested DMOs are charged of the destination's central management functions, that is, strategic

planning and destination development (Inskeep, 1991, as cited in Pechlaner et al., 2012) as well as product development and marketing (Pechlaner & Fuchs, 2002, as cited in Pechlaner et al., 2012) since DMOs are responsible for the improvement of a destination's competitiveness from the destination management approach. Moreover, Bornhorst et al. (2010) reviewed the previous studies pertaining to the DMO and the destination and summarized the managerial functions of the DMO for five categories: marketing and promotion, membership and stakeholders, policy and strategy, information and research, and financial management. In consideration of the research topic of this research, an in-depth overview of the main roles of DMOs is carried out below following the categorization of DMOs' roles listed in previous studies.

Marketing and Promotion

Wang (2011b) underlined the role of DMOs as organizers and facilitators for destination marketing and development in the destination facing the fierce competition between destinations at regional, national and international levels. This view is supported by Dore & Crouch (2003) who conclude that destination promotion is the principal one and budget item for DMOs of which the form can be advertising, direct marketing and sales promotion and public relations. A notable example is the Convention and Visitor Bureau (CVB) in the USA (Wang, 2011b). Similarly, Gartrell (1988) proposes that DMOs are responsible for destination image development that positions destination competitively for both meetings and leisure visitors, as well as managing coordination among various constituent actors. In a broader sense, DMOs are regarded as being responsible for the selling of a destination as a whole despite the actual sale of tourism products largely undertaken by individual firms and travel trade (Presenza et al., 2005). Moreover, collaborative destination marketing represents another key research area, in which DMOs are expected to take leadership in facilitating tourism business activities in their communities (Wang, 2011a). D'Angella & Go (2009), for example, assessed collaborative tourism marketing from stakeholder theory approach. The authors point out that under the leadership of DMO, collaborative tourism marketing leverages various resources to unified goals and both

businesses and DMOs benefit from their cooperation. In addition, as mentioned before, the marketing and promotion roles of DMOs evolve alongside the changing environments as well. For instance, advanced information and communication technology has significantly impacted tourism promotion and the tourist information distribution undertaken by DMOs nowadays, leading to a shift towards digital destination marketing (Pawłowska-Legwand, 2024).

Coordinating Stakeholders

Destination is a network relationship consisting of various actors (Franzoni, 2015). Taking into account transaction costs (Williamson, 1979) and the existence or non-existence of social ties (Presenza & Cipollina, 2010; Zehrer & Raich, 2010), one actor who is able to identify and express collective interests, set up links and facilitate negotiations is thus needed and the task of enhancing stakeholder collaboration is normally assigned to DMOs (Volgger & Pechlaner, 2014). Moreover, DMOs' ability to coordinate stakeholders determines their effectiveness in executing destination management because securing collaboration of various stakeholders is a prerequisite for DMOs to access the resources necessary for effective operation (Presenza et al., 2005). From a destination governance approach, the DMO shifts from a hierarchical steering role to positioning itself as an intermediary and network manager (Pechlaner et al., 2012). The primary tasks of DMOs therefore are to ensure coordination, to promote communication and knowledge sharing, and to encourage the establishment of links between actors (Raich & Pechlaner, 2010). Considerable studies underline the coordinating role of DMOs (Beritelli et al., 2009; Getz et al., 1998; Presenza et al., 2005; Volgger & Pechlaner, 2014). However, Beritelli et al. (2015) approach the coordinator role of DMOs differently and took the perspective of actors affiliated with the DMO and confirmed the DMO functions as a coordinating institution, positively correlated with the strong coordinator roles assumed by its affiliated actors. This implies that instead of a set of stable roles and functions (Bornhorst et al., 2010; Getz et al., 1998; Presenza & Sheehan, 2005), the coordinating role of DMOs is inherently temporary, as these actors can leave and join the organization.

The coordination role of DMOs is associated with the networking capabilities of DMOs. The significance of this capability is linked to destination governance. As destinations can hardly be hierarchically managed in the same way as firms (Laws et al., 2011; Nordin & Svensson, 2007), self-governance, founded on stakeholder cooperation, the formulation of common strategies, and the pursuit of collective action, is regarded as a vital contributor to effective governance (D'Angella & Go, 2009; Jamal & Getz, 1995; Palmer & Bejou, 1995; Raich, 2006). Hence, networking capability constitutes a key determinant in the positive evaluation of their organizational performance (D'Angella & Go, 2009; Halme, 2001). Volgger & Pechlaner (2014) prove that capability is significantly enhanced by power and acceptance of a DMO among its stakeholders that has an impact on DMO success with the help of a quantitative test. Based on these findings, the authors also pointed out that an unequal power distribution and acceptance of this kind of distribution derive from a higher networking capability. This power imbalance is a prerequisite of successful DMO and will influence the allocation of governance instruments within a destination, thereby affecting the effectiveness and success of the destination governance as a whole (Volgger & Pechlaner, 2014). The findings of Pechlaner et al. (2012) also aligned with this. The authors proved that the cooperation carried out within DMOs is positively correlated with their acceptance by destination stakeholders which can be strengthened by broad stakeholder involvement and a high level of efficiency and performance (Pechlaner et al., 2012).

Visitor Management and Information Research

Presenza et al. (2005) define visitor management and information research as the supporting roles among all internal destination development functions of DMOs. The authors suggested that visitor management stands for the ability to communicate the supply of tourism products and services effectively in the destination to visitors (Presenza et al., 2005). Nowadays, this function has increasingly focused on controlling visitor impacts in light of the rapid growth of the tourism sector (J. R. B. Ritchie & Crouch, 2011). This includes fairly managing visitor access to important sites in order to prevent overcrowding and mitigate environment degradation which could undermine the visitor

experience (J. R. B. Ritchie & Crouch, 2003). Regarding information research function, J. R. B. Ritchie & Crouch (2003) divide this function into two types of information flow: inflows providing useful inputs to DMOs' management functions and outflows whereby DMOs provide information to destination stakeholders. The inflows of information serve as an intelligence function, as it makes the DMO understand market demands by providing information about visitor needs and current industry supply (Presenza et al., 2005) and helps the DMO with effective product development (J. R. B. Ritchie & Crouch, 2011). Besides, this function is also expected to monitor visitor satisfaction and industry performance, which should be complemented by special projection designed to provide targeted information for decision-making. With respect to information outflows, DMOs also take responsibility for the provision of key information about the market and performance to their members promptly.

It is understandable that Presenza et al. (2005) characterized visitor management and information research as supporting pillars for all internal destination development functions because these two functions are directly related to helping visitors to have a highly satisfactory experience and carrying out an effective destination management, which are core functions of DMOs (Bornhorst et al., 2010).

Human Resource Development, Financial and Venture Capital and Resource Stewardship

Human resource development mainly involves strategies promoting and encouraging education and training programs (J. R. B. Ritchie & Crouch, 2011), aiming at having well trained employees throughout the whole tourism systems in destinations which are one of pre-conditions to achieve high quality visitor experience (Presenza et al., 2005). In terms of financial and venture capital, DMOs function as brokers of venture capital. On the one hand, DMOs make efforts to provide financial assistance and help destination stakeholders gain access to venture capital (J. R. B. Ritchie & Crouch, 2011). For example, they help financial community raise awareness about the nature of the tourism sector and associated businesses, as well as community development opportunities. On the other hand, DMOs can provide insights into projected tourism demand and the related requirements

for tourism products and infrastructure, which in turn strengthens the confidence of lenders and investors when making funding decisions (Presenza et al., 2005). Finally, resource stewardship for DMOs involves the understanding of the resources that constitute a destination and the "concern" associated with these resources: effective maintenance of these resources, with particular attention to those most vulnerable to tourism-related impacts (J. R. B. Ritchie & Crouch, 2011).

Crisis Management

Destinations need to be able to respond to various crises in an effective way to handle the immediate impact of an event as well as the aftermath (J. R. B. Ritchie & Crouch, 2011). Strong stakeholder coordination abilities and a crisis response plan are consequently needed (Presenza et al., 2005). According to B. W. Ritchie (2004), relative strategies and actions are required at the following main stages: prevention and planning, implementation, evaluation and feedback. Some researchers also pay attention to functions of DMOs in crisis management. Blackman & Ritchie (2008) emphasize that in a crisis or disaster, the key roles of DMOs are to conduct crisis communication with key stakeholders or publics and to develop and implement crisis recovery marketing strategies. Crisis communication constitutes a central function of DMOs to mitigate adverse media coverage, foster collaboration between public and private actors, and to ensure the implementation of consistent messages and recovery marketing measures (Armstrong & Ritchie, 2008; Henderson, 1999). This is concretized by working with internal stakeholders such as staff, and external stakeholders including government, tourism sector, tourists, media and other DMOs (Blackman & Ritchie, 2008).

In addition, Khardani (2025) argues that coordinating public and private destination stakeholders and ensuring their cooperation are key roles of DMOs under crisis scenarios because DMOs are considered to have contacts with all destination actors, are reputed for their coordination role and always decide the best for destinations. Similarly, Katemliadis et al. (2025) underlined the leadership of DMOs in the context of crisis which can influence the vision and perceptions of stakeholders. According to the authors, strong DMOs can respond effectively to a crisis, provide

guidance to stakeholders and a vision involving everyone. Katemliadis et al. (2025) also argued that size and ownership structure, whether public, private and public-private, impact DMOs' leadership and tailored size and ownership are required to fit destination specific needs which will also influence DMOs' response to emerging challenges. Besides, Pennington-Gray et al. (2010) examined crisis plans of DMOs through the case of Florida and indicated that revenues of DMOs such as bed tax revenues influenced the level of tourism crisis management preparedness within DMOs. Consequently, on the one hand, ensuring destination stakeholders' cooperation and acting as coordinators and leaders are necessary for DMOs when a crisis occurs. On the other hand, elements impacting DMOs' response to sudden events also exist such as DMOs' ownership as well as financial resources such as tax revenues.

Quality of Experience

The total quality of visitor experience is perceived as the ultimate outcome of all internal destination development of functions (Presenza et al., 2005) and depends on all experiences had by visitors alongside their journeys (J. R. B. Ritchie & Crouch, 2011). To achieve this, destination managers should make sure that the experience should be seamless and free of unnecessary inconveniences for visitors (J. R. B. Ritchie & Crouch, 2011). An assessment of the quality of the destination experience combined with visitor satisfaction surveys represents one way of supporting this activity (Presenza et al., 2005).

2.4 Key Insights in This Chapter

This chapter reviewed the concepts of destinations and destination management, stakeholders and stakeholder theory as well as DMOs and their roles. It can be found that all these concepts are continuously enriched alongside global tourism development and remain deeply interconnected: destination serves as the physical space where diverse stakeholders interact and where systematic management becomes essential. Within this framework, DMOs are designated to take responsibility for destination management, aiming for sustainable destination development. As previously noted, a

primary driver for stakeholder collaboration is to tackle external challenges. Besides, crisis management emerges as a core DMO function. Today, climate change represents a profound global risk that all destinations must confront. Consequently, the next chapter will address climate change and its impact on ski destinations, while elaborating on the crucial roles that DMOs play in climate change adaptation.

Chapter 3 Climate Change and Roles of DMOs in responding to Climate Change

This chapter concentrates on climate change, a global issue with which all destinations are confronted. The discussion of this issue will be divided into five sections: in Section 3.1, a general narrative regarding direct impacts and indirect impacts of climate change will be explored. Risks caused by climate change for tourism include not only the frequency of extreme weather and derived tourism asset losses, but also the rising travel cost stemming from worldwide decarbonization strategies. In Section 3.2, the scope will be narrowed to climate change impacts on ski destinations. While ski destinations have been considered as one of the most affected destinations by climate change, impact assessment should incorporate snowmaking capacity as well as different GHG emission scenarios in the future. Coping with climate change impacts, ski industries have taken a series of adaptation actions which will be discussed in Section 3.3. Snowmaking remains a key adaptive measure while also being controversial in consideration of the amount of water and energy used. Other actions include diversification of tourism products as well as year-round operation. In Section 3.4, DMOs and their roles in coping with climate change will be elaborated on. The discussion will be started from a distinction and comparison between "climate change" and "sustainability," which have often been discussed commonly in previous literature. In consideration of the research topic of this study and the limited number previous research, the roles of DMOs in enhancing destination sustainability and responding to climate change will be respectively explored in Section 3.4.2 and 3.4.3. Discussion mainly revolves around whether DMOs should assume this responsibility and their specific roles. In Section 3.5, key points drawing from discussions in Sections 3.1-3.4 will be explored.

3.1 Climate Change and its Impacts on Tourism

Intergovernmental Panel on Climate Change (IPCC) defines climate change as "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean

and/or the variability of its properties and that persists for an extended period, typically decades or longer" (Intergovernmental Panel on Climate Change, 2023a). Convincing worldwide evidence showed that the global climate system had changed compared with the pre-industrial era (Solomon et al., 2007). Apart from warming deriving from anthropogenic emissions of greenhouse gases (GHG), human influences also lead to ocean warming, precipitation patterns, wind patterns as well as more intensive extreme storm events (Scott, Hall, et al., 2012c). Tourism is one of the sectors most affected by climate change (Hein et al., 2009; Pang et al., 2013; Scott, Gössling, et al., 2012). For some destinations called "climate-dependent" (K. Smith, 1993), climate is the capital on which tourism depends. Impacts of climate change on destinations can be divided into direct and indirect impacts (Scott, Hall, et al., 2012a). Scott, Hall, et al. (2012a) state that direct impacts include changes in mean climate conditions (temperature, precipitation, humidity, and winds), and extreme events (both frequency and severity of storm events or droughts). In addition, variability of climate also leads to some changes in tourism operations, such as insurance, food and water supply, and heating-cooling costs. "Changes in the length and quality of climate-dependent tourism seasons (winter sports holidays) and in operating costs could have considerable implications for competitive relationships between destinations and the profitability of tourism enterprises." (Scott, Hall, et al., 2012a, p.190). Moreover, extreme events can severely impact destinations by damaging tourism infrastructure and harming their reputation. The tourism sector is compelled to make additional emergency preparations and is increasingly exposed to higher operation expenses.

Regarding indirect impacts, they are related to environmental change and cultural heritage impacts, as well as economic conditions and security risks, according to Scott, Hall, et al. (2012a). Climate change influences the natural environment which determines the attractiveness of a destination and provides essential environmental services. Alterations in environments can lead to the loss of tourism products and environmental services, resulting in a degradation of destination image and the reduced sustainability of tourism businesses (Scott, Hall, et al., 2012a). One of the cases is that variations in precipitations and temperature lead to changes in snow and ice which are essential for

environmental products provided by mountain tourism (López-Moreno et al., 2008). Another representative case is rising sea level and resulting coastal erosion in coastal tourism. For example, Dube et al. (2021) found that coastal tourism in Cape Town, South Africa, is threatened by rising sea levels and the consequent increasing extreme tidal activity exacerbated by climate change in their case study. In addition, as tourism can be economically important for many local communalities or even at regional or country level, degradation of the environment in destinations may negatively impact the tourism economy, as proven in both the mountain tourism case (Gilaberte-Búrdalo et al., 2014) and coastal tourism case (Dube et al., 2021). This fact aligns with the aforementioned perspective of Scott, Hall, et al. (2012a) that indirect climate change impacts are associated with economic conditions in destinations.

On the other hand, indirect impacts of climate change on cultural heritage would be reflected by damages of materials of building, corrosion and recession of materials such as metal or stones (Sesana et al., 2021). In terms of security risk, evidence shows that destinations with high crime rates, low life expectancy, or socio-economic instability are less appealing to tourists (Gössling & Scott, 2026). Climate change acts as a catalyst for socio-political unrest and inter-group conflict (Burke et al., 2024; Hsiang & Burke, 2014). A reduction in tourism due to security concerns would further exacerbate deteriorating economic conditions in destinations caused by climate change related disruptions, potentially hindering development goals especially in some of the least developed countries (Scott, Hall, et al., 2012a). To conclude, indirect impacts from climate change involve the degradation of tourism assets (natural and cultural) in destinations (Gössling & Scott, 2026) and social instability due to climate change, which result in economic losses for destinations.

Moreover, other impacts associated with climate change are those arising from GHG emission reduction (Scott & Gössling, 2022). Tourism emissions contributed 8.8% of total global GHG emissions in 2019 (Sun et al., 2024), while the crucial Paris Climate Agreement has set up the goal of keeping global warming below 2 °C (United Nations, 2016). Against this background, decarbonization strategies are imperative in tourism sectors and some of these can affect destinations. For example, as

noted by Scott & Gössling (2021), the transport sector is one of the sectors most affected and is required to implement net-zero emission[1] strategies, including restricting long-haul air travel. However, this poses significant challenges to Small Island Developing States (SIDS) relying heavily on long-haul international markets. Given the predominant contribution of tourism to their GDP, this transition can thus exacerbate their economic conditions (Scott & Gössling, 2021). In the context of low-carbon imperatives, Gössling & Higham (2021) suggested that destination managers should pay more attention to social welfare, that is tourism profitability and wealth distribution in regional economy. The authors consequently proposed three key parts for a low-carbon destination economy: lowering carbon emissions, adding value per tourist arrival and reducing economic leakage. Ultimately, it can be concluded that economic stability should also be considered when climate actions are adopted.

Scott et al. (2024) concluded that both unavoidable changes in climate and society mitigation and adaptation actions, will shift the competitiveness and sustainability of destinations and alter demand. In terms of demand side, on the one hand, tourists can adapt to the degradation of tourism assets and extreme weather through spatial substitution, temporal shifts, and activity modification (Gössling & Scott, 2026). On the other hand, they may seek cheaper, closer destinations (spatial substitution) or even forego holidays to cope with rising travel costs derived from the global net-zero transition (Gössling & Scott, 2026). While the precise relationship between climate change and demand remains to be further explored, this research focuses specifically on adaptation at destination dimension from the supply side. In addition, compared to adapting to the impacts of a low-carbon transition, this research concentrates on how a destination adapts to the degradation of tourism assets caused by climate change. Decarbonization actions will only be addressed in Chapter 9, based on the answers of interviewees (Chapters 6 and 7) and content analysis (Chapter 8).

[1] IPCC (2018) defined net-zero emissions as “achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period” (p.555).

3.2 Impact of Climate Change on Ski Destination

Skiing and winter sports tourism is the most directly and immediately influenced by climate change (Scott, 2011). According to Scott, Hall, et al. (2012a), the risk of climate change encountered by the ski industry is mainly decreased natural snow reliability, shortened and variable ski seasons, increased snowmaking requirements, decreasing snowmaking opportunities, and a reduction in the number of ski areas from the perspective of operation. And for the ski industry, snow season length and snow-reliable ski areas are two indicators explored to measure snow conditions and the impacts of climate change (Scott, Hall, et al., 2012a). To date, researchers, such as Gilaberte-Búrdalo et al. (2014) and Scott & Steiger (2024), shared the same points of view and take snow season length as well as the number of ski resorts remaining operable as indicators when they assessed how ski resorts in various regions will be impacted under different global warming scenarios.

Based on a review of the relevant literature, two points are worth noting when investigating the impacts of climate change on ski destinations: first, snowmaking has been widely used by the skiing industry, and the requirement for snowmaking will still increase in the future (Scott, Hall, et al., 2012a). With the application of snowmaking, the projected impact of climate change will be largely alleviated compared with the result reported in previous studies which didn't include snowmaking capacities (Hennessy et al., 2008; Steiger, 2010, 2011). However, limitations associated with snowmaking have also been reported in terms of snow-production days, costs, water and energy usage (Gilaberte-Búrdalo et al., 2014). For example, Pickering & Buckley (2010) stated that fewer nights are suitable for snowmaking for ski resorts at lower altitudes and more snowmaking guns are thus necessary. Therefore, there is more consumption of water and energy and higher costs.

The second point is that the impact of high emission scenarios is more severe than low and medium emission scenarios[2], despite advanced snowmaking capacities. Lower-elevation and small ski areas are more vulnerable to climate change impacts. (Scott, Hall, et al., 2012a). Recent research

[2] According to IPCC (2000), total global cumulative CO2 emissions from 1990 to 2100 can be more than 1800 GT C under a high emission scenario, more than 1100 under a medium emission scenario and inferior to 1100 under a low emission scenario.

proved this argument: In a comparison study of Eastern Canada and US Northeast ski resorts regarding climate change risk, Scott et al. (2020) reported that even with advanced snowmaking, season length losses are restricted to 12-13% under a low emission scenario while increasing to 15-22% under high emissions by mid-century. Significant differences under different emission pathways will emerge by late-century: season length and operable terrain losses remain minimum under a low-emission scenario while transformational impacts happen under high emission: 29 ski areas in Québec and high-elevation areas of the US Northeast can manage to preserve a 100-day season and maintain regular operations throughout the economically vital Christmas and New Year period. Likewise, Scott, Knowles, et al. (2024) noted an extended period of manageable season length losses under low emissions compared with a high emission scenario for Austrian ski resorts. Besides, regarding small ski areas, their vulnerability to climate change impacts is due to their limited financial capacity to absorb the influence of poor snow years (Scott et al., 2008), especially if in close succession (Scott et al., 2019).

Moreover, Scott, Hall, et al. (2012a) pointed out that although existing literature has focused more on average changes to ski season, greater attention should be paid to future inter-annual variability in ski seasons for the ski industry. “Occurrence of a series of consecutive snow-deficient winters is particularly dangerous for the skiing industry” (Kundzewicz et al., 2008, p.119). Conversely, influence can be very slight for ski-area operations if every ski season by mid-century is several weeks shorter, since most of the season loss happens at the beginning and the end of the season, when skier demand is relatively lower (Scott, Hall, et al., 2012a).

The aforementioned evidence suggests differentiated impacts of climate change on ski destinations, dependent on future emission scenarios, level of snowmaking as well as the scale of ski industry. Facing projected climate change, adaptive capacity determines whether individual ski areas remain viable (Scott et al., 2007). Consequently, various destinations will confront distinct challenges and necessitate tailored adaptation strategies (Rodrigues et al., 2018). For destinations at risk of losing skiing tourism due to climate change, they need to tackle economic issues derived from the decline of ski industries by increasing economic diversity and rebranding the destinations. On the other hand,

destinations where ski tourism will persist need to minimize the negative effects of over tourism brought by skiers due to the contraction of ski areas while maintaining sustainability of destinations (Scott, Hall, et al., 2012a). The specific adaptation pathways available to ski destinations will be explored in the next section.

3.3 Adaptation of Ski Destination to Climate Change

Adaptation under the circumstances of climate change, as defined by both the IPCC and United Nations Framework Convention on Climate Change (UNFCCC), is related to "adjustments in socio-ecological systems in response to actual or expected climate stimuli and associated impacts (negative or positive)" (as cited in Scott, Hall, et al. , 2012b, p.266). Scott, Hall, et al. (2012b) stated that adjustments to climate mitigation policies are not included in the concept of adaptation, despite the fact that such policies are frequently discussed as part of adaptation strategies with tourism stakeholders. Moreover, the authors underlined that adaptation may address both occurring climate variability and extremes, as well as future climate change that entails shifts in average conditions and in the intensity and frequency of extreme events. Actions for adaptation can be anticipatory, meaning implemented before the impacts are observed, or reactive, occurring after impacts have taken place. Both actions can be planned in advance. In addition, a relevant concept is adaptive capacity, which is defined as "the ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences" (Intergovernmental Panel on Climate Change, 2001, p.982). At the level of social systems, adaptive capacity refers to the extent to which an individual, organization, or society can formulate and implement adaptation strategies (Scott, Hall, et al., 2012b).

As remarked in the previous section, snowmaking has been a prevalent adaptation of ski industries since the 1990s (Scott, Hall, et al., 2012b). It has become an inherent part of the ski tourism industry, as shown by the fact that it has been included in assessments of future climate change impacts (e.g. Scott et al., 2020; Knowles et al., 2024b). However, snowmaking as adaptation strategy

requires low temperatures (Steiger & Abegg, 2013). In addition, it poses sustainability challenge regarding intensive energy and water consumption (Wyss et al., 2014). Furthermore, it may disrupt alpine vegetation and change biodiversity even under restricted use of chemical additives (Moser & Baulcomb, 2020), thus influencing the effectiveness of the adaptation in the medium to long term (C. Morrison & Pickering, 2013). Nonetheless, a recent study by Scott, Knowles, et al. (2024) demonstrated that snowmaking is highly place-context specific and underscored the importance of scales and perspective of a tourism system when assessing if snowmaking is a maladaptation. Knowles et al. (2024c) provided a positive case from Canada's ski industry, highlighting the possibility of reduction of GHG emissions from snowmaking alongside the decarbonization of the electricity grid.

Product diversification is another adaptation strategy commonly employed by ski resorts (Scott, Hall, et al., 2012b). This strategy has been perceived to be broadly sustainable since it not only lowers the snow-dependency of resorts but also decreases the total vulnerability of destinations to all kinds of crisis (Dubois & Ceron, 2006). Product diversification enables destinations to provide attractions to visitors from different segments of markets at one and the same time (Bausch & Gartner, 2020) (For example, skiing, snowshoes for snow-based activities, and hot springs, spa centers for activities). The limits of this adaptation strategy are manifested in the constraints of available resources or the lack of originality and attractiveness of these new activities to tourists (Kaján & Saarinen, 2013). Another relative adaptation strategy is an all-year round operation, especially for those destinations at lower elevation (C. Morrison & Pickering, 2013). Aiming to alleviate the influence brought by the seasonality and reliability of natural snow, this strategy may contribute to year-round employment opportunities (Hopkins & Maclean, 2014) as well as the profitability and sustainability of the investments (Bicknell & Mcmanus, 2006). Some destinations may need rebranding in the future (Steiger et al., 2024). Nevertheless, winter tourism remains fundamental for these destinations, whereas summer activities are often regarded merely as an extra income (Scott, Hall, et al., 2012b). Moreover, some summer activities can also generate environmental problems (Steiger et al., 2021).

One point worthy being underlined is that perceptions of adaptation strategies differ between various stakeholders of destinations. For example, while snowmaking remains the main industry adaptation strategy (Cholakova & Dogramadjieva, 2023; C. Morrison & Pickering, 2013; Scott, Hall, et al., 2012b), it can be perceived negatively by other stakeholders. The phenomenon can be caused by conflict of interest among various stakeholders as well as their various interpretations of the core concept. For example, C. Morrison & Pickering (2013) report a rejection of non-tourism participants to snowmaking as adaptation strategy in their study of stakeholder perceptions and adaptation strategies to climate change within Australian ski resorts. The reason is linked to the potential increasing amounts of water used, consequently resulting in removing water availability for the community and other industries. Similar negative attitudes expressed by tourists and residents can also be found in the study of Cholakova & Dogramadjieva (2023) about Pamporovo ski resorts in Bulgaria. In this case, tourists and residents remain positive toward diversified tourism products and all year resort operations as adaptation strategies, which would be considered to enhance the authenticity of destination and ensure full-season employment respectively. In addition, when Moser & Baulcomb (2020) examined different perspectives of stakeholders on snowmaking with respect to sustainability, the findings suggested that despite the consensus on the significance of sustainability, variations exist in how its principles were interpreted among different stakeholder groups. These differing interpretations resulted in different ways to carry out actions that were considered to hinder the development and implementation of sustainable development plans.

The gap between climate change and related perceptions by stakeholders can sometimes emerge. It may hinder appropriate adaptation among ski tourism destinations. This can be caused by the overoptimism of ski operations for snowmaking. Although ski area managers are aware of risk deriving from climate change (Wolfsegger et al., 2008), they remain optimistic in terms of their capacity to cope with future climate change through the use of snowmaking (Scott, Hall, et al., 2012b; Steiger et al., 2019). Few takes into account ecological (e.g., large amount of water use), social (social acceptance), and economic impacts (operating costs) of snowmaking that further limit the adaptive

capacity offered by snowmaking (Damm et al., 2014; Pickering & Buckley, 2010; Scott et al., 2007; Steiger & Abegg, 2013). Moreover, incompatibility between business and impacts from climate change scenarios can be another reason. “The very long timelines of climate change impacts make it a low business management priority” (Scott, Hall, et al., 2012b, p.280). Ski area operators adjust their operations in response to seasonal market dynamics and climatic variability to maintain their competitiveness in markets (Steiger et al., 2019). This point is also shared by other tourism sectors in which tourism stakeholders were less interested in a long-term scenario of climate change (mid-century). Another concern related to risk perception of climate change by ski industry stakeholders is the misinformed portrayal of the implications of climate change in the media (Scott, Hall, et al., 2012b; Wolfsegger et al., 2008) that can be more detrimental than the real impacts (Hopkins & Maclean, 2014). Numerous media reports have focused on studies that possess the key limitations, resulting in an overstatement of the threats posed by climate change to the ski industry (Steiger et al., 2019). The image-sensitive characteristics of the ski industry make stakeholders reluctant to engage in related studies. These studies easily generate media reports and government risk assessments which will adversely affect financial institutions, investors, real estate developers, or destination image (C. Morrison & Pickering, 2013; Scott, Gössling, et al., 2012; Trawöger, 2014). In consequence, providing scientifically accurate information that is publicly available is required (Steiger et al., 2019).

In addition, it should be noted that only adaptation from the supply side is discussed here in consideration of the current research topic. The adaptations from the demand side implemented by visitors, including temporal substitution (alteration of skiing timing), spatial substitution (alteration of skiing location), and activity substitution (substituting skiing with other activities) (Cocolas et al., 2016; Scott, Hall, et al., 2012b), have been paid attention to by related studies which will be omitted here.

3.4 DMOs' Roles in Promoting Sustainability and Responding to Climate Change in Destinations

3.4.1 The Relationship Between Sustainability and Climate Change

Before discussing the roles of DMOs in promoting sustainability and responding to climate change in destinations, it is necessary to clarify the concept of sustainability and climate change, which share some commonalities (Reddy & Wilkes, 2012; Santos et al., 2023).

Three basic aspects: economic, social and environmental have been widely accepted as the triple-bottom-line of sustainability (Elkington, 1994). Recent research has expanded the framework into a quadruple bottom line, and its specific dimensions vary across different research themes: Govinnage (2025) integrated culture into the mainstream framework in considering the crucial role of culture in shaping ethics, decision making and innovation. In the context of tourism, Crotts et al. (2022) conceptualized sustainable tourism as comprising four pillars: visitor economy, workforce satisfaction, resident support and environmental health, and emphasized that easy access to the data related to these four pillars can help sustainable tourism progress at the community level. Despite the flexibility of interpreting component pillars of sustainability, the scope of this research remains in its basic triple-bottom-line. Moreover, it should be noted that the sacrifice of one bottom line for another is erroneous because each bottom line is irreplaceable: the environmental threshold should be kept for the global system, and the economic bottom line assures the profit without which enterprises can't survive. The social bottom line is less clear and interpreted differently over time (Peeters et al., 2024). In addition, sustainability represents a broader notion than sustainable development, which is centered on strategies for human development (Santos et al., 2023) and encompasses interaction between human activities and Earth's environment (Scott, Hall, et al., 2012c). Sustainable tourism is a subgroup of tourism and sustainable development, referring only to the application of sustainability within the tourism sector and the consequent social, environmental and economic effects (Scott, Hall, et al., 2012c). J. R. B. Ritchie & Crouch (2011) also suggest that sustainability from destination perspective entails not only ecological considerations. but also economic, sociocultural, and political

dimensions. Specifically, within the ecological dimension, tourism development should aim to minimize environmental damage while also providing incentives that encourage the preservation and protection of natural resources. Regarding economic dimensions, sustainable tourism requires tourism policy and management strategies that generate benefits for the wider community, make use of local labor, and ensure job stability. In terms of sociocultural sustainability, policies and programs should minimize negative social and cultural impacts while promoting interest and pride in the distinctive elements of a culture or society without freezing it in the past. Political sustainability is perceived to be realizable if the other three dimensions are met. There is frequently a lack of consensus on the criteria for determining sustainability. Although this has been considered to be a constraint for its implementation (Haid et al., 2021; Peeters et al., 2024), it naturally leaves considerable space for different opinions (J. R. B. Ritchie & Crouch, 2011).

Regarding climate change, based on the discussion mentioned above, it should be concluded that climate change emerges not just as an environmental concern but also as a phenomenon with extensive economic and social implications at a destination level, making it closely connected to a broader sustainable development agenda (Scott, 2011). The commonalities between sustainability and climate change in the context of tourism were thereby shown. Besides, both sustainability and climate change possess forward-looking nature, which reflects a certain concern regarding the future of humanity (Santos et al., 2023).

In terms of the relationship between tourism sustainability and climate change, Weaver (2011) contended that tourism's engagement with climate change does not necessarily align with the interests of tourism sustainability. The conclusion is grounded in the difficulties of climate change policy and strategies, which stem from attributes of climate change, such as extended timespan, limited directly tangible consequences, and the additional complications arising from the attitudes and behaviors of tourism actors – for instance, an indifferent and unpredictable travelling public and a correspondingly disengaged tourism sector (Weaver, 2011). Scott (2011) reviewed the research of Weaver (2011) and presented a different perspective. By providing various theoretical support and practices, the author

argued that “how tourism responds to climate change is absolutely critical to sustainability of tourism and should the sector retreat from engagement in climate change, it would be to its substantial detriment” (Scott, 2011, p.28). To conclude, several previous literatures proved that climate change is fundamentally recognized as a sustainable development challenge (Peeters et al., 2024; Reddy & Wilkes, 2012; Scott, 2021). However, “there can be no sustainable tourism if we fail on climate change” (Scott, 2021, p.4).

3.4.2 Roles of DMOs in Promoting Sustainability of Destinations

In light of the characteristics of climate change and sustainability as well as the existing limited research, the roles of DMOs in promoting sustainability and responding to climate change across both general and alpine destinations. Below, the role of DMOs in promoting destination sustainability will be elaborated on first. It should be mentioned that the discussion below would draw no distinction between literature about sustainability, sustainable development and sustainable tourism at destinations.

In the context of sustainable tourism governance, DMOs are perceived as the catalyst for change in destinations by providing tourism services, and their roles as management organizations have been emphasized (Wagenseil et al., 2024). The reason is that the roles of non-state actors in a pluralistic policymaking process have been increasingly recognized in the governance context (Hezri & Dovers, 2006) and the roles of DMOs shift from pure marketing towards management and strategic destination development (World Tourism Organization, 2019). Given that sustainable development is a long-term goal, DMOs play significant roles in vision formulation, integration of sustainability into the overall destination strategy, or elaboration of a specific sustainable tourism development plan (A. M. Morrison, 2023; Wagenseil & Zemp, 2016). The work of Wagenseil et al. (2024) in their study regarding DMOs of alpine destinations from Switzerland, Germany, Austria, and Italy also proved that DMOs incorporated the development and implementation of primary destination sustainability strategy into their responsibility. The authors argue that DMOs are thought to be coordinators within tourism

destinations and thus assume a role in the sustainability transition as well: DMOs serve as a connector between the political authorities on different scales and the local tourism sector. The former plays a role of guiding sustainable development with their policies, while the latter should put into practice the measures and thus promote sustainable tourism by providing sustainable tourism offers. The coordinator is required to maintain an overall perspective, ensure mid- to long-term planning, and reconcile the economic, environmental, and social interests in tourism development (Wagenseil et al., 2024).

Besides, a leading role can also be attributed to DMOs and governments to achieve a common goal in the long run (Wagenseil et al., 2024). Leadership is an essential prerequisite to foster a shared understanding of the importance of sustainable tourism and for guiding its practical implementation (Hezri & Dovers, 2006). The study of Wagenseil & Zemp (2016) points out that while DMOs recognize possessing the skills required to act as sustainability leaders within destinations, they currently face constraints in terms of financial and time resources. Research results of Wagenseil et al. (2024) also show that some DMOs remained moderate in their role as sustainability leaders due to the lack of financing, time and personnel resources. Possible solutions according to the authors include adding the related tasks into the existing job description of the employees, even creating a new position responsible for sustainable development. DMOs can also be leaders with respect to the market of sustainable tourism products: the findings of Rivera et al. (2024) prove that some DMOs from 50 European countries regard themselves as key actors in responding to the increasing demand for tourism products aligned with sustainability principles and “they clearly feel that they are the promoters of these principles” (Rivera et al., 2024, p.25).

In terms of the implementation of sustainability, Wagenseil et al. (2024) underline that although a lack of urgency, expertise, as well as suitable political frameworks were mentioned, constraints of financial and human resources are the main reasons that limited the comprehensive operational implementation of sustainability. Some pioneering destinations in alpine regions have already implemented a holistic sustainable development strategy, using their progress as a key element

in positioning themselves to visitors, given that sustainable tourism offerings are also increasingly desired by visitors. Besides, the attribution of responsibility for sustainable development among stakeholders is also highlighted in the research results of Wagenseil et al. (2024): political authorities as well as local tourism operators are considered to be the main actors for sustainable development, while less than 40% of surveyed DMOs see themselves in that role. Another point emphasized by Wagenseil et al. (2024) is the gap between the level of importance that the DMOs attribute to the various sustainability criteria and the fulfilment. The authors suggested that awareness of the significance of sustainability as well as that in the future were demonstrated, whereas implementation is not sufficient. Implementing these criteria will necessitate further strategic discussion and decision at both DMO and destination levels. This includes determining how DMOs can assume and fulfill these new responsibilities, which will require an expanded mandate and the provision of the necessary resources to efficiently manage this task over the medium and long term (Wagenseil et al., 2024).

The roles of DMOs in sustainability in destinations can also be seen in the development of sustainable tourism products, especially during COVID-19. Rivera et al. (2024) show that European DMOs treated the pandemic as a turning point for a change in which the market perceived sustainable tourism to be valuable in hygiene and health, although they already paid attention to sustainability of tourism before the crisis. Ethical and environmental criteria have gained prominence as "… there is a real and growing demand for this type of product in the market" (Rivera et al., 2024, p.24). In addition, the DMOs demonstrate a high level of satisfaction with the sustainable products offered in their respective regions. Besides, Rivera et al. (2024) found that crisis communication strategy concentrated on the final customer, defined as external stakeholders in destination. The authors contended that this result is in contrast to the conclusions drawn by Blackman & Ritchie (2008) who think crisis communication of DMOs is often internally focused.

3.4.3 Roles of DMOs in Response to Climate Change in Destinations

Roles of DMOs in responding to climate change in destinations have been addressed by

limited previous literature, while a small proportion involving the discussion of destination resilience will be elaborated on in the next chapter. Existing discussions were explored in two dimensions: whether DMOs should assume responsibility for destinations' response to climate change and what their specific roles are.

In terms of DMOs' responsibility in climate actions, positive answers were offered by all existing literature. Dodds (2010), for example, who explored the perception of DMOs about climate change, stated that DMOs were unique to deal with climate change within the tourism sector as they connect the interests of the tourism sector with government policymakers and consumer demand and are sensitive to the shifting preferences of tourism demand. In the same vein, Wagenseil & Zemp (2016) noted that DMOs serve as coordinators within destinations and connectors between the local tourist industry and political authorities, among which the compromise of interests should be attained (Nunkoo, 2017). In addition, Hall & Veer (2016) adopted a sustainability lens and underlined the crucial roles of DMOs in guiding destinations' shift toward sustainability. Similarly, Nomm et al. (2026) put emphasis on the necessity of reframing DMOs from narrow promotional roles towards stewardship roles of destinations to realize a low-carbon future. Nonetheless, the study of Dodds (2010) revealed that there is a misalignment between perceived DMOs' responsibilities and their perception regarding their roles in destinations. According to the author, "they primarily see themselves as a marketing agency and are focusing on short-term promotional issues rather than long-term competitiveness" (Dodds, 2010, p.3458). In this case, the DMOs also felt that they did not have the resources to offer adequate training and planning for climate change mitigation, and policy-based actions are thus required for mitigating the effects of climate change (Dodds, 2010).

With regard to DMOs' specific roles in coping with climate change in destinations, MacEachern et al. (2024) recently conducted another examination of DMOs' roles in sustainable tourism facing climate change using a case study of Prince Edward Island. Several basic roles of DMOs discussed in section 3.4.3 have been highlighted in the context of destinations' responses to climate change. First, DMOs are encouraged to use their marketing tools to cope with climate change

(MacEachern et al., 2024). As mentioned before, one of DMOs' roles is external destination marketing, concretized by strategic marketing activities such as image definition, branding, and positioning (J. R. B. Ritchie & Crouch, 2003). In the case of Prince Edward Island, DMOs are expected to create a distinctive and appealing brand to show the commitment of destination to sustainability and its efforts to deal with climate change. Given the trustworthiness of DMOs, destinations are seen as a more sustainable option and thus attract more ethical travelers who choose the tourism operators possessing a sustainable vision. This will increase the number of companies that do so in turn. (MacEachern et al., 2024). In addition, DMOs are responsible for destination image development that positions the destination competitively for both meetings and leisure visitors (Gartrell, 1988). To cope with climate change, DMOs support businesses carrying out sustainable practices by mobilizing their resources and influence to strengthen the destination's image (MacEachern et al., 2024). Through effective marketing campaigns, DMOs emphasize the unique features of sustainable businesses that play the role of educators in increasing consumer knowledge and desire for sustainable products and services (Pedapalli et al., 2022). A more responsible and resilient vacation destination and sustainable economic growth can be consequently encouraged (MacEachern et al., 2024).

In addition, actions initiated by DMOs to prevent environment degradation and limit carbon emissions caused by visitors can also serve as an educational function. One of the primary roles of DMOs is promoting knowledge sharing (Raich & Pechlaner, 2010). Furthermore, Dodds (2010) contends that consumers are thought to be not well-informed enough to demand more sustainable choices. Consequently, DMOs should establish mechanisms that allow both host communities and visitors to recognize and appreciate the value of sustainability within the framework of sustainable tourism (Edgell Sr, 2019; Roxas et al., 2020). In the case of Prince Edward Island, educational initiatives involved developing media such as signs and brochures to promote environmental protection and cultural respect (Malheiro et al., 2020). With the development of Internet, DMOs are also expected to utilize digital tools such as regional websites to provide warnings and awareness

about the fragility of the regions so the tourists can know it before their arrival (McCaffrey, 2017). Besides, an emphasis on walking and public transport will not only lower the tourism-related emissions but also alleviate traffic congestion, which benefits the whole community (Ibric et al., 2023). In addition to raising awareness related to destination sustainability, educational actions also take the interests and concerns of the community (MacEachern et al., 2024) and can thus cultivate a sense of ownership and pride among residents, thereby promoting a more sustainable and balanced relationship between tourism and the residents (Wani et al., 2024).

Coordination role of DMOs has also been putting emphasis on here. DMOs perform as centralized hubs that facilitate interaction and work among local tourism stakeholders (Zainal-Abidin et al., 2023). In the case study by MacEachern et al. (2024), DMOs "… can initiate cooperative efforts wherein several operators work together to achieve sustainable goal" (p.6). One example is that they can help businesses advance the development of sustainable practices within the destination by offering the opportunity for sharing knowledge and experiences with other participants and experts (MacEachern et al., 2024). Besides, DMOs should also be attentive to and share information across different levels of stakeholders to facilitate transformative change and create a sustainable tourism model guaranteeing long-term benefits (Budeanu et al., 2016).

Furthermore, DMOs are supposed to support and finance sustainable practices and destination management by means of funding that they can attain (Pike, 2004). This can thereby indirectly benefit local enterprises and promote wider cooperative engagement across the sector (MacEachern et al., 2024). Moreover, DMOs are anticipated to play an educational role for local businesses which are considered to lack knowledge related to climate change and sustainability (Dodds, 2010). DMOs are well positioned to identify the unique needs and challenges faced by local operators, which are often context-specific (Bornhorst et al., 2010). In the context of climate change, operators' capacity can be fostered through training focused on sustainability, capacity building, and resilience to climate change impacts, customized and exerted by DMOs (Lin & Wang, 2023; Pedapalli et al., 2022). In addition, Dodds (2010) claimed that for accelerating the transition of industry, establishing a central regulatory

body that mandates compliance with industry-wide benchmarks is desired. Consequently, both DMOs and local businesses, from the perspective of DMOs, are seeking guidance from the government (Dodds, 2010). In turn, a DMO seeking to transition toward sustainable operations should advocate government policy and practice that recognize the risks and vulnerability related to unsustainable tourism among stakeholders (Budeanu et al., 2016).

Finally, another point about DMOs' roles in responding to climate change is their roles in decarbonization. As noted in Sections 3.1 and 3.2, decarbonization is one of the challenges that DMOs must be confronted with in consideration of the goal of net-zero. Few recent studies addressing this topic are reviewed here to clarify the responsibility of DMOs and possible barriers in the low-carbon transition. Guix et al. (2025), for example, examined the current roles of DMOs in carbon management and their influence on the decarbonization of various factors, obtained through a review of longitudinal carbon emissions studies. Their findings indicated that only a limited number of existing DMOs have committed to net-zero pledges. This is evident in the evaluation of decarbonization factors in their mitigation strategies: while some factors, such as energy efficiency and supply chains, have been overly relied on, others remain underexploited such as mix market and certain strategies, such as volume control, have not yet been considered. In addition, DMOs also exert leadership through public-public and public-private collaboration to influence capital investment decisions, which generate trickle-down effects on some mitigation factors such as consumption structure and market mix. As noted by Volgger & Pechlaner (2014), DMOs are positioned at the center of destination stakeholder networks, enabling them to play a leading role in advancing climate governance through advocacy and lobbying activities (Guix et al., 2025). Moreover, Guix et al. (2025) remarked that DMOs currently demonstrate insufficient accountability in achieving a net-zero goal, as most lack carbon footprint inventories and pledged DMOs fail to submit annual action plans. The improvement actions suggested by the authors for DMOs to take decarbonization responsibilities include strategizing and policymaking for the net-zero transition, supporting tourism firms in reducing their carbon footprints, coordinating with national and regional government and private industry for large-scale policy

changes, and encouraging consumers to lower emissions as well as developing low-carbon products.

On the other hand, in a study exploring regional destination managers' and stakeholders' understanding of their roles and constraints in low-carbon transition in New Zealand, Nomm et al. (2026) pointed out that leadership and planning were identified as the most desirable but less feasible measures compared with marketing interventions in emission reduction, contrasting with the findings of Guix et al. (2025) noted above. The authors also suggested that strategic priorities related to decarbonization initiatives need institutional support, flexible funding, as well as alignment with national policy frameworks.

3.5 Key Insights in This Chapter

In this chapter, the discussion primarily revolves around two big parts: climate change and its impacts, and DMOs' roles in responding to climate change. Two key insights can be drawn from the discussion above. First, while snowmaking, product diversification, and year-round operation remain three popular adaptation strategies applied by ski industries, snowmaking has gotten more focus as it can mitigate the impacts. However, evaluation remains necessary before applying snowmaking, in consideration of its impacts on destination environment as well as GHG emissions. In addition, although Scott, Hall, et al. (2012b) highlighted adaptive capacity at the individual, organizational, and social levels, previous studies have paid less attention to adaptations implemented by other stakeholders in ski destinations. Addressing this gap aligns with one of the research purposes in this study.

Second, in terms of DMOs' roles in enhancing destination sustainability and coping with climate change in destinations, there are some common points: DMOs are deemed responsible for both goals (achieving destination sustainability and responding to climate change), considering their fundamental destination management and coordination roles. Possible constraints seem to be limited resources and misalignment between perceived roles and real perceptions by DMOs. In terms of low-carbon transition, limited institutional support can impede carbon conscious leadership of DMOs

(Nomm et al., 2026). In addition, it can be concluded that DMOs cannot address the impacts of climate change without promoting sustainable tourism development. In the study of Dodds (2010), the emphasis was on raising awareness of consumers about climate change to stimulate their demand for sustainable initiatives, whereas MacEachern et al. (2024) highlighted several initiatives, including marketing campaigns for strengthening a sustainable destination image as part of DMOs' roles in responding to climate change. This might be explained by the relation between climate change and sustainability in destination concluded in Section 3.4.1, where climate change is fundamentally recognized as a sustainable development challenge (Peeters et al., 2024; Reddy & Wilkes, 2012; Scott, 2021). Additionally, destination competitiveness model proposed by J. R. B. Ritchie & Crouch (2003) illustrates that sustainability and competitiveness are the ultimate objectives for destination management. Similarly, in the existing literature focusing on DMOs' roles in the face of climate change, the central concern remains how to achieve destination sustainability by addressing challenges posed by climate change.

Furthermore, considered as a kind of risk, climate change and destinations' adaptation are associated with another concept – resilience, especially destination resilience, which underscores destinations' ability to adapt to disruptive events. In the next chapter, concepts of organizational resilience associated with DMOs and destination resilience will be elaborated on, as well as the roles of DMOs in enhancing destination resilience. Although literature examining the organizational resilience of DMOs and DMOs' roles in destination resilience in the face of climate change is limited, discussion based on the extant literature serves as a theoretical foundation for this research.

Chapter 4 Theoretical Framework: Destination Resilience and Organizational Resilience

This chapter outlines the resilience theory including organizational resilience and destination resilience, on which this study is built. Section 4.1 outlines the social-ecological resilience approach by introducing key concepts, including adaptive cycle, panarchy, adaptive capacity and vulnerability. These concepts form the cornerstone of this study and represent the main characteristics of social-ecological resilience, such as interconnection between systems and learning capacity. Section 4.2 then explores organizational resilience in the context of destinations, which serves as a theoretical framework for DMO's resilience. While the majority of existing literature on this topic is related to organizational resilience of businesses, few existing literature underlines that for public agencies like DMOs, organizational resilience centers on "adaptation" rather than on "agency survival". Furthermore, this section reviews factors impacting organizational resilience. Section 4.3.1 then concentrates on destination resilience, which will be analyzed at the macro-level as well as the micro-level. The existing literature with regard to organizational resilience of DMOs in crisis scenarios and DMOs' roles in enhancing destination resilience will also be revised in Section 4.3.2. Conclusions drawn from findings offer the theoretical support necessary to investigate NPB's resilience to climate change addressed by this research.

4.1 Social-Ecological Resilience Thinking

Rooted in ecology studies, resilience was first interpreted as the capacity of an ecosystem to confront change and disturbance while maintaining a similar level of structure and functions to its pre-disturbed conditions (Engle, 2011; Hall et al., 2023; Holling, 1973). The approach later recognized that systems could organize around various stable states (Engle, 2011; Gallopín, 2006), which is perceived as one of the characteristics of ecological resilience (Berkes et al., 2002). Resilience thinking has given rise to several approaches such as engineering resilience, ecological resilience, as well as social-ecological resilience. While ecological resilience emphasizes the ability of systems to absorb changes

but allows multiple states (Berkes et al., 2002), engineering resilience highlights the ability to face disruptions and bounce back to the stage before disruptions (Folke, 2006). However, what has been widely adopted in tourism literature is the social-ecological resilience approach (Hall et al., 2018c; Prayag, 2018; Ruiz-Ballesteros, 2011). The social-ecological resilience approach acknowledges the complexity of systems and interactions between systems (Basurto-Cedeño & Pennington-Gray, 2018). Besides, it highlights the importance of adaptive capacity, learning, and innovation capability in a dynamic context (Tyrrell & Johnston, 2008).

The social-ecological resilience approach conceptualizes change and development of systems through "adaptive cycle" and "panarchy" (Walker et al., 2004, 2006). The adaptive cycle comprises four phases: exploitation, conservation, release, and reorganization (Gunderson & Holling, 2002). The exploitation and conservation phases include a gradual, cumulative forward loop of the cycle that is predictable (Walker et al., 2006). The conservation phase is characterized by slow net growth, a more interconnected but less flexible structure, and a more vulnerable system to external disturbances (Cochrane, 2010; Walker et al., 2006). The occurrence of external changes triggers the release of energies and resources and the collapse of the structure, resulting in the lowest level of resilience in the release phase (Cochrane, 2010; Walker et al., 2006). A new beginning can be created from which a new way of living evolves (Walker et al., 2004) in the reorganization phase after the release. Structures within socio-ecological systems move through similar phases presented in the adaptive cycle (Gunderson & Holling, 2002) and interplay across scales, which form the panarchy (Walker et al., 2006). The panarchy also revealed that even the movement paths of social-ecological systems are similar in the event of crisis, they would never repeat the same path with the previous structure because accumulated memories, learning capacities, and experience would lead to the renewal, recombination, and development of structures (Gunderson & Holling, 2002).

Apart from adaptive cycle and panarchy, resilience, adaptive capacity and vulnerability are three fundamental concepts which frequently appear in social-ecological resilience thinking. They are interconnected (Prayag, 2019) and interpretations of their relations vary (Nunes, 2021). The

vulnerability of a system is defined as the susceptibility of a system to disturbances determined by the exposure and sensitivity of that system and the capacity to adapt (Nelson et al., 2007; Smit & Wandel, 2006). Furthermore, resilience can be perceived as the opposite of vulnerability (Holling, 2001). Vulnerability and resilience are mutually shaped, enhancing resilience therefore requires examining the sensitivity of systems to various stresses and how human actions influence vulnerability (Cochrane, 2010). “From this perspective, resilience becomes a way to reduce or overcome vulnerability” (Prayag., 2023, p. 514). With respect to adaptive capacity, it is defined as the ability of a system to adapt to disturbances and maintain resilience (Hill Clarvis & Engle, 2015). Humans are unique in possessing the capacity to anticipate future events and engage in purposeful decision-making. The self-organization within complex social-ecological systems is thus distinct from that in ecological systems (Westley et al., 2002). Therefore, the adaptability of systems at a local level might also be influenced by the local networks, institutional environment, access to resources, etc. (Folke, 2006; Smit & Wandel, 2006; Westley et al., 2002), which are related to human actions. Besides, adaptive capacity is studied in studies of different resilience approaches, including social-ecological resilience, organizational resilience, etc. (Prayag, 2023). The application of social-ecological resilience thinking can be further explored in specific systems, where destinations can be an appropriate one characterized by complexity (Reinhold et al., 2023). In consideration of the research questions, organizational resilience and destination resilience will be addressed below.

4.2 Concept of Organizational Resilience and Its Application for DMOs

In general, organizational resilience has been described as the capacity of organizations to survive and adapt to crises (Fiksel, 2006). Apart from this concern related to recovery from crises, organizational resilience also serves as a unique basis for establishing sustainable competitive advantage (Hamel & Välikangas, 2003; Lee et al., 2013). Biggs et al. (2012) adopt a broader perspective and advocate that organizational resilience is central to sustainable tourism management. These points of view prove that the discussion of organizational resilience is meaningful, although the

contribution of organizational resilience to sustainability is not addressed here in detail.

Organizational resilience is first paid attention to by management approaches. Among several competing definitions, McManus et al. (2008) define organizational resilience as "a function of an organization's overall situation awareness, management of keystone vulnerabilities and adaptive capacity in a complex, dynamic and interconnected environment" (p.82). The description of the environment in this definition aligns with that of a destination characterized by complexity and interconnectedness between stakeholders. Another important perspective on organizational resilience is the proactive approach and the reactive approach. Organizations are able to anticipate disruptions and adjust their actions accordingly from the proactive approach (Vargo & Seville, 2011) while Lengnick-Hall et al. (2011) and Paton & Johnston (2001) contend that organizational resilience implies the ability of an organization to develop a set of skills that help organizations adapt to changing circumstances, implying an assumption that organizations bounce back from disturbances and rebuild themselves from the reactive approach. Furthermore, some properties of ecological and social-ecological systems are equally relevant to organizational resilience (Hall et al., 2018b), such as the system's capacity to learn and adapt (Carpenter et al., 2001; Ponis & Koronis, 2012). Moreover, organizational resilience, much like ecosystem dynamics, can encompass multiple stable states instead of a single equilibrium (Gunderson et al., 2002).

Before a deepened discussion of organizational resilience, it should be noticed that the majority of the literature focusing on organizational resilience is situated within the context of enterprises, even in the field of tourism. This point can also be understood from the fact that scholars have also employed "enterprise resilience" to replace organizational resilience (Biggs et al., 2012). Few relevant literatures addressed organizational resilience of DMOs. However, given that DMOs are often public or public-private agencies (Hall et al., 2018b), their organizational resilience shifts from "agency survival" (Adam et al., 2007; Lewis, 2002) to "design for adaptation" (Boin et al., 2010) under crisis scenarios. Furthermore, Hall & Veer (2016) emphasize the distinction between abrupt events and gradual changes. The latter plays a more important role in the transition of organizational

states over time (Hall et al., 2018b). These arguments provide a rationale for organizational resilience of the NPB in the context of climate change. Besides, although existing discussions are primarily in the context of enterprises, exploring the factors contributing to organizational resilience are meaningful because "…DMOs would be wise to adopt the mind-set of resilient organizations" (Scarpino & Gretzel, 2014, p.19).

Regarding the factors that contribute to organizational resilience, existing literature highlights the importance of innovation, adaptation, and survival strategies (Dahles & Susilowati, 2015; Specht, 2008). Financial resources such as access to additional finances, together with social capital including support from and the community as well as collaboration among businesses, and human capital, particularly employees' skills and capacities to cope with changes, would also influence organizational resilience (Biggs et al., 2012). Besides, organizational characteristics such as type and size of the organization, industry sector type, as well as location can impact resilience as well (Prayag & Orchiston, 2016).

Based on these factors enhancing organizational resilience, a discussion in light of the critical infrastructures impacting the management and building of organizational resilience from an inside view of organizations has been carried out by Hall et al. (2018b). Three factors are people, processes, and partnership (Hall et al., 2018b). While the role of people is largely associated with human capital, which aims to enhance individual resilience of employees, business continuity management is emphasized concerning the roles of processes (Hall et al., 2018b). With regard to the role of partnership, the level of organizational resilience is shaped by its interdependencies, namely the degree of partnerships and cooperation with supply chain members as well as other stakeholders such as the community (Sheffi, 2015; Wu & Choi, 2005). Research has shown that social capital (Biggs et al., 2012, 2015; Cheung & Chan, 2008) encompassing both professional and informal network relationships can serve as a crucial resource for organizations to resolve internal organizational crises and to help the recovery of an organization after external shocks (Doerfel et al., 2010).

Organizational resilience has been proven relevant to destination resilience (Hall et al.,

2018a). Previous studies mainly examined factors and characteristics influencing tourism businesses' resilience to sudden disruptive events (e.g., Orchiston et al., 2016), while few have contributed to organizational resilience of DMOs, among which the majority were under crisis management. The review of these studies will be carried out in Section 4.3.2. The paucity of relevant literature also stresses the research purpose of this study, which addresses the organizational resilience of DMOs to climate change.

4.3 Destination Resilience

4.3.1 Concept of Destination Resilience

Destinations are complex units for resilience analysis (Hall et al., 2018a) and they can manifest high vulnerability (Biggs et al., 2015; Ghaderi et al., 2015; Méheux & Parker, 2006) as well as adaptability (Buultjens et al., 2015; Jopp et al., 2010). Despite the growing body of research, there is a lack of a precise and consistent definition of destination resilience (Hall et al., 2018a) as well as consistency of approaches applied in previous research (Hall et al., 2023). For example, destination resilience has been defined as "the ability of social, economic or ecological systems to recover from tourism-induced stress" (Tyrrell & Johnston, 2008, p.16), which, according to Hall et al. (2018a, p.106), reflects "more resilience to tourism than the resilience of the tourism system itself." The authors also stated that destination resilience is shaped not only by individual and organizational resilience, but also by the characteristics of the destination system itself, from which the attributes derive from the density and richness of the networks existing between stakeholders in the destination and in different tourism-generating regions. Generally, destinations with more extensive and interconnected networks are more resilient to external disruptions (Hall et al., 2018a).

Social-ecological dimensions were widely adopted in destination resilience (Hall et al.Berkes, 2007, p.292). A resilient social-ecological system seeks innovation, learning, and adaptability (Tyrrell & Johnston, 2008). It is crucial to recognize the multi-dimensions of resilience, as well as the diverse stakeholders whose values and influence can either enhance or undermine the resilience of a particular

destination (Hall et al., 2018a). Several destination resilience frameworks were also developed at social-ecological dimensions. For example, Cochrane (2010) developed the sphere of tourism resilience, emphasizing that the awareness of market forces and the ability to harness them, stakeholder cohesion and associative working, and strong, consistent leadership are three key elements of a resilient tourism system, taking into account three contextual factors: flexibility, learning, and adaptability. Besides, the destination sustainability framework of Calgaro et al. (2014) shows exposure, sensitivity, and system adaptiveness as interconnected dimensions of destination vulnerability. The feedback loops in this framework reflect the "panarchy" characteristics of social-ecological resilience by emphasizing that actions taken in the post-event phase will affect the exposure and sensitivity of destinations to future disasters. In addition, Amore et al. (2018) proposed the framework of destination resilience from the multilevel perspectives on which this research is built. The reason is that various stakeholders were incorporated and divided into multiple levels. According to Amore et al. (2018), "the multiple scales of destination resilience show how resilience is affected not only by what happens within a particular level of analysis, but also by what lies above and below" (p.245). The contribution of resilience at different levels to the whole destination resilience shows the connection between this framework and the panarchy of social-ecological resilience. This also provides the significance of this research, which focuses on organizational resilience of the NPB and the destination resilience of Niseko from multiple stakeholder perspectives.

Hall et al. (2018a) provided a relatively holistic assessment of destination from both macro (ecological, socio-ecological, and socio-political dimensions) and micro perspectives (urban, organizational, community, and individual community) because the authors asserted that "… a sound assessment of destination resilience requires rigorous yet comprehensive frameworks of analysis" (p. 107). As the macro dimensions and organizational and community dimensions would be explored in Chapter 9, these dimensions will be expanded below.

Regarding ecological dimensions, Hall et al. (2018a) argued that changes in ecosystems are acknowledged from this dimension. And the ecological resilience is referred to as the capacity that

allows the system to reorganize and adapt to a new state after the presence of a stressor (Basurto-Cedeño & Pennington-Gray, 2018; Brown & Williams, 2015). Assessing and planning resilience are underlined in the literature related to ecological resilience (Luthe & Wyss, 2014). And according to Hall et al. (2018a), a practical starting point can be to examine the state of the destination's physical environment and ecosystems, along with their ability to adapt and respond to change. In addition, with respect to social-political dimensions of destination resilience, governance is understood as the process of governing places through laws, regulations, and decision making (Bevir, 2011; Rhodes, 1997). The roles of DMOs and networked governance were interpreted from this dimension. Luthe & Wyss (2016) highlight the importance of networked governance in relation to tourism and resilience through their study of three regional DMOs within Surselva-Gotthard tourism system in Switzerland. Their findings indicated that innovation and learning are more likely to occur when DMOs have broad and diverse networks at regional and local scales, whereas rapid responses tend to be more effectively executed within smaller, less hierarchical networks. Besides, Hall et al. (2018a) argued that literature integrating post-disaster into the analysis of social-political resilience shows that successful destination resilience requires cooperation between public sector and business interests. Such collaboration strengthens greater stakeholder trust and enables collective action in responding to various disruptions (Jones et al., 2010), including climate change and sudden crises (Lew, 2014).

With regard to micro dimensions, community dimensions of destination resilience were discussed. It can refer to the ability of communities to absorb impacts, respond adaptively to threats, reorganize, learn, and recover following disasters (Cutter et al., 2008). Cases related to community resilience suggest that destination resilience depends on community resilience, which in turn mitigates vulnerabilities to both disasters and ongoing stressors for the various stakeholders involved in providing tourism services (Hall et al., 2018a).

Furthermore, organizational resilience dimensions were underlined as well. In the discussion of Hall et al. (2018a), the authors conceptualized organizational resilience from three perspectives relevant to destinations: organizational resilience is referred to as intrinsic characteristics of

organizations (Auerswald & van Opstal, 2009), capacity of enterprise (Fiksel, 2006), and the cumulation of social and cultural factors within organizations (Stephenson et al., 2010) . Organizational resilience allows enterprises to survive and adapt to crises, cope with the damaging changes post-disaster (Whitman et al., 2014), and develop new capabilities by means of responding to emergent situations (Nilakant et al., 2014). Existing empirical research focused on how local enterprises in a destination respond to disturbances (e.g. Dahles & Susilowati, 2015) or characteristics of resilient enterprises (e.g. Biggs, 2011; Biggs et al., 2015). Detailed discussion will be omitted here, given that resilience related to DMOs is focused by this research. In the case of DMOs, their roles in enhancing destination resilience were emphasized, which are quite similar in promoting destination sustainability. Khardani (2025), for example, emphasized the importance of strengthening and defining the role of DMOs in building destination resilience, especially their roles of coordinator and facilitating cooperation among destination stakeholders. Although the work of Khardani (2025) is under crisis management, which is not necessarily the same as a climate change scenario, the significance of DMOs' roles in destination resilience can be confirmed. Furthermore, in the context of climate change, Bhandari et al. (2015) also stated that resilient organizations of this kind need to move beyond a purely destination marketing function and enhance their knowledge as well as their networks with other stakeholders of the destination. These efforts, in turn, "can facilitate destination resilience and adaptation to climate change" (Bhandari et al., 2015, p.99). Specific discussion of DMOs' roles in destination resilience will be elaborated on in the next section.

Destinations are characterized by complexity that complicates the analysis, and in consideration of their contextual nature, there are no given one-size-fits-all solutions for destination resilience (Hall et al., 2018a). A range of solutions is required for destinations to cope with issues that vary from long-term, large-scale impacts such as climate change, to sudden small-scale impacts such as earthquakes (Hall et al., 2018a; Lew, 2014). According to Hall et al. (2018a), the following conditions are necessary for resilient destinations. First, a resilient destination recognizes the vulnerabilities exposed to its resources, attractions, as well as infrastructures by potential hazards and

chronic stressors. Second, the development path that advantages some stakeholders should not be at the expense of the benefits of other vulnerable stakeholders. Third, a resilient destination should develop a long-term strategy which allows for adaptive measures grounded in communicative and community-based planning principles. Fourth, a resilient destination needs to continuously adjust its governance approach to promote cross-institutional and multi-stakeholder engagement. Finally, a resilient destination functions at appropriate regional and local levels.

4.3.2 DMOs and Destination Resilience to Climate Change in Practice

Literature focusing on organizational resilience of DMOs and destination resilience provides an opportunity to learn and conclude DMOs' roles in enhancing destination resilience in practice. Bhandari et al. (2016), for example, explored the roles of DMOs in the adaptation of a UK island destination to climate change. The authors underlined that limited access to new knowledge sources or networks and a lack of education and training within the DMO in the case led to an insufficiency of new knowledge stocks flowing into the organization. This will hinder the DMO's institutional capacity and the destination's capacity to adapt to climate change (Bhandari et al., 2016). Besides, Luthe & Wyss (2016) compared networked governance on different scales in three Alpine villages and indicated a higher resilience of the DMO at the regional governance level in responding to more gradual and complex changes because the central network steered by DMOs presents a higher potential for collective action, innovation, social learning, mitigation and transformation required by adaptation to gradual changes. Moreover, Pechlaner et al. (2018) discussed responsibility in destinations by means of a case study in different urban and rural destinations in Bavaria, Germany. The authors concluded that a good reputation for a DMO is necessary for destination development promoting resilience since the more positively assessed the DMO's work, the higher the political support is and the activities to establish comprehensive strategies for shaping the destination's future-oriented design can expand. Various funding sources to finance the DMO's work are also underlined for building a resilient DMO (Pechlaner et al., 2018).

In addition, as noted above, one discussion examining the organizational resilience of DMOs is that, under tourism crisis management (Scarpino & Gretzel, 2014). As mentioned in section 2.3, Blackman & Ritchie (2008) pointed out that DMOs play crucial roles in communicating crises with key stakeholders and implementing crisis recovery marketing strategies. Along the same lines, Becken & Hughey (2013) argued that DMOs are important players in crisis management because they possess comprehensive knowledge of local tourism infrastructure and resources as well as the communication channels. The latter means DMOs are charged with facilitating collaboration between tourism businesses, authorities at the local level and national level, and emergency services (Beirman, 2010; Pforr & Hosie, 2009).

Among the limited extant literature addressing organizational resilience of DMOs in crisis management, Scarpino & Gretzel (2014) developed a new framework by crossing selected dimensions from the organizational resilience model posed by Stephenson (2010) with strategies represented in the tourism crisis management framework B. W. Ritchie (2004). The authors highlighted eight dimensions in tourism crisis management through which DMOs can enhance their organizational resilience: proactive planning and strategy formulation, scanning to planning, strategy evaluation and strategic control, crisis communication and control, resource management, understanding and collaborating with stakeholders, resolution and normality, as well as organizational learning and feedback. And the eight dimensions were categorized across pre-crisis, in-crisis, and after-crisis stages.

According to Scarpino & Gretzel (2014), proactive planning and strategy formulation, scanning to planning, strategy evaluation, and strategic control are included in the phase before the occurrence of crisis events. In this phase, planning is identified as the most crucial element of effective tourism crisis management and indispensable for organizations of any size. DMOs are consequently required to be aware of the evolving external environment as well as internal transitions such as department restructuring. At the same time, DMOs should identify external opportunities and threats by interpreting relevant information so that they can accordingly adjust their plans and strategies to make them correspond to the current crisis environment, the needs of organizations, as well as other

stakeholders. Besides, DMOs also need to serve as a central information hub for enterprises. Information gathered by enterprises should be capitalized on to validate their current plans for crisis and identify needed revisions. Moreover, awareness of social, cultural, or behavioral barriers that may hinder efficient communication is also crucial at pre-crisis stages. From the perspective of organizational resilience, all initiatives noted above reflect a proactive posture of DMOs to respond to crisis (Scarpino & Gretzel, 2014).

Scarpino & Gretzel (2014) categorized the crisis communication and control dimension as an emergent phase and underlined the significance of communication during times of crisis. Open communication channels should be ensured during a crisis for DMOs and all other stakeholders. These arguments align with the roles of DMOs in crisis management interpreted by Blackman & Ritchie (2008) and Becken & Hughey (2013) discussed above. In addition, DMOs should make efforts to communicate their crisis management role to each stakeholder and clarify what they can offer. Conversely, the dynamics and capacity of all stakeholders, critical resources that these stakeholders can offer during crisis, should also be understood by DMOs (Scarpino & Gretzel, 2014).

Resolution and normality, organizational learning and feedback are two dimensions situated in the aftermath of crisis. The findings of Scarpino & Gretzel (2014) show that organizational learning and setting up future goals are two pivotal actions necessary at this stage. For the former, "…organizations need to take time to evaluate and gain feedback on the effectiveness of their strategies and responses" (Scarpino & Gretzel, 2014, p.27). To help DMOs recognize possible gaps and improve crisis management plans, organizational learning must be integrated throughout the entire crisis management process and across all related stakeholders. For the latter, organizations should spend time setting short-term and long-term goals, and this step can also be completed following the step of evaluation and feedback, as it is also for the future (Scarpino & Gretzel, 2014).

Scarpino & Gretzel (2014) integrated organizational resilience perspectives and tourism crisis management into a new framework, providing a basis on which DMOs can formulate their own resilient crisis management strategies to fit their context and needs because there is not a one-size-fits-

all approach. In addition to necessary actions taken by DMOs in different stages of crisis, the author underlined the importance of a wide range of resilient resources (social, natural, and human), whether they are tangible or intangible. For smaller DMOs, or those with constrained resources, Scarpino & Gretzel (2014) suggested that they could enrich their resource base and enhance stakeholder communication and collaboration by supporting the establishment of a local tourism-driven crisis management body because of the interdependence between organizational resilience and community (Dalziell & McManus, 2004).

In the past few years, the COVID-19 pandemic was considered a complex disruptive event with tremendous multidimensional impacts on the global tourism system (Aldao et al., 2021). This pandemic further stimulated research into the roles of DMOs in helping destinations build the resilience required to withstand the impacts of the pandemic. Although the roles of DMOs in these studies pertain to crisis management, which is different than the scenario of climate change, they remain worthy of being discussed because the pandemic is analogous to unmitigated climate change (Gössling et al., 2020). Because climate change becomes tangible, and its cumulative effects intensify over time. The risk of tipping points is thus added (Lenton et al., 2019).

Regarding the roles of DMOs in the face of COVID-19, Kuščer et al. (2022), for example, demonstrated an expectation from DMOs to governments' responses to pandemics by exploring different countries' and destinations' responses to COVID-19 at the initial stage. As the globally interconnected crisis appears difficult for regional managers to deal with alone (Kuščer et al., 2022), DMOs turned to provincial or national authorities for guidance, enabling them to follow appropriate strategic and even legal directions (Blake & Sinclair, 2003). In community-based destinations, DMOs play the role of conveying government instructions directly to local entrepreneurs operating within destinations (Flagestad & Hope, 2001). Furthermore, behavioral knowledge is generated from formal knowledge expertise (Paraskevas et al., 2013). Kuščer et al. (2022) argued that DMOs are considered to be equipped with behavioral knowledge as they coordinate the complex networks of actors within a destination. Consequently, when they assume leadership during a crisis, they also shape the

destination's long-term crisis culture. Moreover, the authors emphasized that DMOs served as collaboration managers who gathered key individuals together to cope with crisis. At the restart phase, DMOs concentrated on their local resources for future sustainability, as they are perceived as key experts who should take initiatives for further sustainability action (Kuščer et al., 2022).

Another research related to DMOs' roles in destination resilience to cope with COVID-19 has been carried out more recently. Månsson & Eksell (2024) examined the interrelationship between DMOs and stakeholders at different scales, explored the communication work completed by DMOs in Sweden, and found out how this communication can contribute to destination resilience during the COVID-19 pandemic. According to the authors, DMOs contributed to promoting local communication, fostering environmental sensitivity as well as awareness of vulnerabilities and risks through carrying out business intelligence, which means "…participation in strategic planning, being a communication expert, problem solver and staying up to date with environment" (Månsson & Eksell, 2024, p.457). The application of business intelligence also showed a proactive and adaptive gesture of DMOs to continuously changing circumstances, benefiting the destination resilience. The collaboration with local stakeholders to form training initiatives from which the new skills were obtained will strengthen not only industry competence but also their resistance to future crisis (Månsson & Eksell, 2024).

Another point that DMOs in the case of Månsson & Eksell (2024) contribute to destination resilience is connectivity. Hall et al. (2018c) have highlighted the importance of networks and stakeholders' collaboration in enhancing destination resilience. Månsson & Eksell (2024) revealed that DMOs in Sweden took on liaison roles by establishing and developing communication platforms in the form of networks with stakeholders at all levels. This communication allowed different stakeholders to learn from each other, contributing to destination resilience from the perspective of social-ecological resilience (Folke, 2006). The established communications and collaboration can further strengthen connectivity at different levels, and being involved in different networks and collaborations reinforces the adaptive capacity by developing shared approaches to common challenges (Månsson & Eksell,

2024).

Findings from literature on destination resilience to COVID-19 highlight several key roles of DMOs that align with the organizational resilience framework proposed by Scarpino & Gretzel (2014). The first is the role of leadership. While Scarpino & Gretzel (2014) primarily emphasized the leadership role of DMOs during the pre-crisis stage, empirical evidence demonstrates that this role is equally crucial during crisis (Kuščer et al., 2022). In addition, DMOs are expected to take this role by participating in planning and keeping updated with the environment, which has been defined as business intelligence by Kuščer et al. (2022; Månsson & Eksell, 2024). Moreover, the role of facilitating communication and coordination has also been underlined in pandemic-related literature. Both Kuščer et al. (2022) and Månsson & Eksell (2024) underscored the stakeholder network formed by DMOs through which, DMOs coordinated various stakeholders to cope with the pandemic and foster communication among them. This role corresponds to the in-crisis responsibility of DMOs outlined by Scarpino & Gretzel (2014).

4.4 Key Insights in This Chapter

This chapter is mainly constructed around a discussion of destination resilience, organizational resilience, as well as the DMOs' roles within these frameworks. The following points are worth extracting and summarizing.

From the perspective of the application of resilience approach, most tourism literature paying attention to resilience is based on social-ecological resilience approach. Although some scholars, such as Prayag (2018) and Ruiz-Ballesteros (2011), have previously highlighted this point, the present review of the literature has newly brought this point to light. It can be observed that although some studies apparently focused on other macro dimensions of resilience, such as social-political dimensions, the underlying logic of socio-ecological resilience thinking is still evident. This is because it acknowledges the interactions between systems and emphasizes the learning, innovation, and adaptive capacity that are essential for stakeholders when implementing initiatives to cope with both

sudden and slow-onset disruptions. This point provides the justification for the utilization of social-ecological resilience perspective in this study to explore the roles of DMOs in destination resilience and their organizational resilience in the face of climate change.

Regarding the organizational resilience of DMOs and DMOs' roles in destination resilience to respond to climate change, it can be concluded that empirical research related to organizational resilience of DMOs remains relatively scarce, regardless of whether it addresses disruptive events or gradual changes. Additionally, while the COVID-19 pandemic has recently garnered significant scholarly attention, studies specifically focusing on DMOs' roles in destination resilience against climate change remain notably limited. Only the work of Bhandari et al. (2016) and Luthe & Wyss (2016) have paid attention to this perspective. Nevertheless, the existing literature shows that although gradual changes and sudden crisis possess distinct characteristics against which the roles of DMOs can differ, possessing crisis-related knowledge and facilitating destination stakeholders' cooperation through the network steered by DMOs represent two overarching roles that can enhance destination resilience.

In the next chapter, the methodology of this research will be discussed. It starts by elaborating on the interpretive research paradigm adopted by this research, aligning with the diversified conceptualization of destination resilience. Embedded in this research paradigm, how this research is designed and how data were collected and analyzed will then be presented. The primary and secondary data, as well as the applied qualitative methods including content analysis and thematic analysis, provide triangulation for this study.

Chapter 5 Methodology

This chapter presents the methodology, outlining the research design utilized to arrive at the study's conclusion. It begins by introducing the interpretive research paradigm, which describes the researcher's worldview and underpins the approach to data collection and analysis. The case study method is then discussed. In the preceding part, the rationale as well as the limitations for using a case study is clarified, and how to overcome these limitations is also explained. In the subsequent part, the site for the case study- the Niseko area- is introduced. Demographic and inbound visitors' information reveals disparities among the three towns comprising the Niseko Area: Niseko Town, Kutchan Town and Rankoshi Town. The data collection and analysis for secondary and primary data are then elaborated on, respectively. Utilizing data from various sources forms data triangulation, which can contribute to mitigating methodological bias, then enforcing research validity.

5.1 Research Paradigm

Guba (1990) defined a paradigm as "a basic set of beliefs that guides action, whether of the everyday garden variety or action taken in connection with a disciplined inquiry" (p.17). The research paradigm can be understood through its underlying components: ontology, epistemology, methodology and axiology. The ontology queries the nature of reality, while the epistemology shows the relationship between the researcher and the objects of research. With regard to axiology, it is concerned with value, ethics and associated ethical practice (Guba, 1990; Heron & Reason, 1997; Jennings, 2001). In terms of methodology, Jennings (2001) identified the difference between paradigm, methodology and method as follows:

> …a paradigm is the overlying view of the way the world works; the methodology is the complementary set of guidelines for conducting research within the overlying paradigmatic view of the world; and the methods are the specific tools of data and/or empirical material collection and analysis/interpretation/(re)construction that a researcher will use to gather information on the world and thereby subsequently build 'theory' or 'knowledge' about the world. (p. 35)

Table 5-1 Interpretive Research Paradigm of This Study

Terms	Type
Ontology	Relativist
Epistemology	Subjectivist
Methodology	Qualitative
Axiology	Propositional

Source: Author, adapted from Jennings (2001)

This research adopts an interpretive paradigm as shown in Table 5-1. This paradigm considers the world to be composed of multiple realities (relativist) in terms of ontology. The preceding literature review supports this stance, providing evidence that multiple realities are inherent in destination resilience and organizational resilience of DMOs. For instance, Luthe & Wyss (2016) emphasize the contextual dependency of destination resilience while Hall et al. (2018b) highlighted the existence of diverse definitions regarding organizational resilience. These scholarly perspectives align with the relativist ontology that forms the foundation of this study.

A subjective epistemology is assumed within the interpretive paradigm, according to which knowledge is co-constructed through the interaction between the researcher and subject (Jennings, 2001). Such knowledge emerges inductively from "…particular situations, captured through in-depth, systematic analysis and interpretation, by the researcher" (Cuthbertson et al., 2020, p.96). In this research, knowledge is generated by deeply engaging with local tourism stakeholders and Niseko Promotion Board (NPB) directors. Through semi-structured interviews, the subjective meaning of these local tourism actors is captured, analyzed and interpreted to form a comprehensive understanding of destination resilience and organizational resilience of the NPB.

Regarding the methodology, a qualitative methodology will be applied in this research. "A researcher operating in this paradigm seeks to understand phenomena from an insider's perspective rather than an outsider's perspective, as is the case in the post/positivist paradigms" (Jennings, 2001, p.41). Data were collected in the real world (D. L. Morgan, 2007) with the help of semi-structured

interviews with tourism stakeholders in the Niseko area, complemented by an extensive review of official documents produced by local governments and relevant newspaper articles spanning a ten-year period. The empirical materials have been analyzed and interpreted using content analysis and thematic analysis.

In terms of axiology, researchers within the interpretive paradigm "...value propositional knowledge which is transactional and has instrumental values linked to social change and emancipation…For interpretive social sciences researchers, values are inextricably and intrinsically embedded in research processes" (Jennings, 2001, p.41). Consistent with subjective epistemology, the knowledge in this research was co-constructed by researchers and objects (transactional). Furthermore, the knowledge generated here possesses instrumental value as it enriches the knowledge about destination resilience to climate change and fills the gap in the existing literature on organizational resilience of DMOs to climate change (instrumental values liken to social change).

5.2 Research Design

5.2.1 Case Study: Niseko Area

Prior to a detailed introduction of the Niseko area, the justification for selecting a case study is discussed. According to Yin (2009), "a case study is an empirical inquiry that investigates a 'contemporary phenomenon in depth and within its real-life context', especially when the boundaries between phenomenon and context are not clearly evident" (p.18). In addition, Stake (2013) described that "a case study is both a process of inquiry about the case and the product of the inquiry" (p.8). There are different types of case studies, including "exploratory", "explanatory", "single", "multiple" (Yin, 2009), "intrinsic", "instrumental" and "multicase" (Stake, 2013). Based on these typologies, this study adopted an exploratory, single, and instrumental case study.

First, this research is exploratory because the purpose of the research is to explore the organizational resilience of DMOs to climate change and destination resilience to future impacts of climate change from multiple stakeholders' perspectives, where publicly available empirical materials

remain limited (Yin, 2009). The literature review indicates that few existing studies have focused on these topics. Second, this research employs a single case study, as only the Niseko area and the NPB were chosen as the objects of analysis. The selected case may be critical, unique, extreme or revelatory (Yin, 2009). The Niseko area is a ski destination reputed for its powder snow, and winter tourism is its main tourism activity. The significance of its natural resources and potential effects of climate change on the destination make the destination become an illustrative example of destination resilience to climate change. Regarding the DMO, as the NPB is the only DMO representing the whole Niseko area, thus also a typical example for a case study. Finally, the case study in this research is instrumental in the sense that the purpose is not only to understand the Niseko case itself but to gain insight into the issues of organizational resilience of DMO and destination resilience from multiple stakeholders' perspectives. This corresponds to the characteristics of an instrumental case study, which is carried out to achieve secondary ends (Stake, 2013).

However, there are also some limitations associated with the validity and reliability of case studies (Riege, 2003; Street & Ward, 2012). Issues concerning validity include that findings are specific to a single case and cannot be generalized to other cases (Jennings, 2001). Nonetheless, Quintão et al. (2020) argued that analytical generalization should be underlined, compared with statistical generalization. Analytical generalizations seek a process of generalizing empirical observation into theory (Levy, 2008). To achieve this, it is necessary to provide a clear rationale for case selection as well as its context (Quintão et al., 2020). In this study, the aforementioned parts and Chapters 2 and 3 shed light on the reason for selecting the Niseko area as the case and the context of climate change and DMO's roles.

Another issue is related to reliability. Researchers may not behave ethically. Empirical material collection, analysis and findings may consequently lead to biased interpretation (Jennings, 2001). To ensure the process of replication of studies, which means confirming the reliability of the case study, a protocol and a case database are required (Quintão et al., 2020). Specific actions include recording the interviews, coding the responses and utilizing analytical methods of data analysis

(Quintão et al., 2020). In this study, all the interviews were recorded, and the responses of interviewees were coded. In addition, thematic analysis was employed to analyze the data by means of NVivo software, which is represented below.

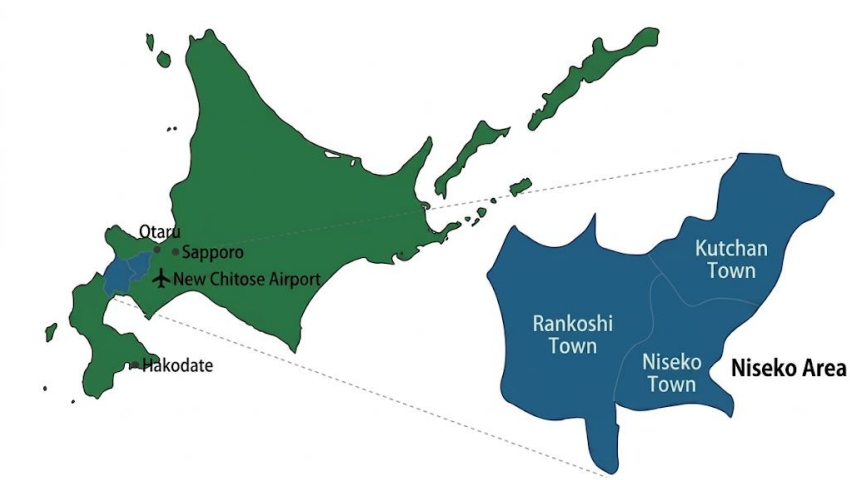


Figure 5-1 Niseko area

Source: Author, adapted from Niseko Tourism Zone

The Niseko tourism area, located in southwestern Hokkaido, contains Kutchan Town, Niseko Town and Rankoshi Town. The area can be accessed by flight followed by a railway (approximately 2.5 hours), private car (approximately 2.5 hours), or a ski bus (available only during the winter, taking about 3.5 hours) from the New Chitose Airport (Kutchan Town et al., 2025). The area is characterized by a distinctive geographical setting shaped by the Niseko mountain range, including Mountain Niseko Annupuri and the prominent Mountain Yotei. Local authorities promote this area as a premier winter destination, renowned for its exceptionally high-quality powder snow, while also highlighting how its abundant natural resources foster various outdoor activities to attract a diverse range of visitors (Kutchan Town et al., 2025).

Table 5-2 reveals demographic and employment information of three towns in the Niseko area and that of Hokkaido. In terms of demographic information, data from the Ministry of Internal Affairs

and Communications (2025) show that Kutchan Town ranks 38th in population size among the 179 municipalities in Hokkaido in 2025 and ranked first in foreign population when excluding Sapporo. Regarding Niseko Town, it ranks 85th in population size in Hokkaido in 2025 and ranked 11th in foreign population when excluding Sapporo. Besides, there are less population in Rankoshi: it ranked 98th in population size in Hokkaido in 2025 and 53rd in foreign population if Sapporo is not included. Regarding average age, based on the 2020 Population Census carried out by the Statistics Bureau of Japan (2022) in 2020, the average age in both Kutchan Town and Niseko Town was younger than that of Hokkaido, whereas the average age in Rankoshi Town was significantly higher.

Concerning employment information, significant differences emerge among these three towns. The proportion of employment in the primary industry in Rankoshi Town and Niseko Town was notably higher than those in Kutchan Town and Hokkaido. The primary industry, particularly agriculture, remains a main industry for both Rankoshi Town and Niseko Town, most notably for the former. In regard to the tertiary industry, although Hokkaido shows a high level of employment, Kutchan Town presents an even higher proportion of employment. More than half of the workforce (15 years old and over) in Niseko Town and Rankoshi Town is also involved in the tertiary industry. However, when narrowing the focus on the accommodation and food services sector, the proportion of employment is much higher in Niseko Town and Kutchan Town compared with Rankoshi Town and Hokkaido.

Table 5-2 Demographic and employment profiles of Niseko area by town

Geographic Area	Kutchan Town	Niseko Town	Rankoshi Town	Hokkaido
Total Population as of Jan 1, 2025 (persons)	17120	5551	4501	5044825
Japanese Population as of Jan 1, 2025 (persons)	13493	4498	4273	4979204
Foreign Population as of Jan 1, 2025 (persons)	3627 (21.19%)	1053 (18.97%)	228 (5.07%)	65621 (1.3%)
Average Age in 2020 (years)	46.2	47.7	54.3	49.8
Employed Persons (15 Years Old and Over) in 2020 (persons)	8628	2682	2498	2636824
Proportion of Employment in the Primary Industry in 2020 (%)	8.4	17	25.4	6.3
Proportion of Employment in the Secondary Industry in 2020 (%)	11.8	14.8	15.3	16.9
Proportion of Employment in the Tertiary Industry in 2020 (%)	79.8	68.2	59.3	76.8
Proportion of Employment in the Agriculture in 2020 (%)	7.6	16.4	23.3	5
Proportion of Employment in the Accommodation and Food Services in 2020 (%)	13.7	18.2	7	6.2

Source: Author, adapted from Statistics Bureau of Japan (2022)

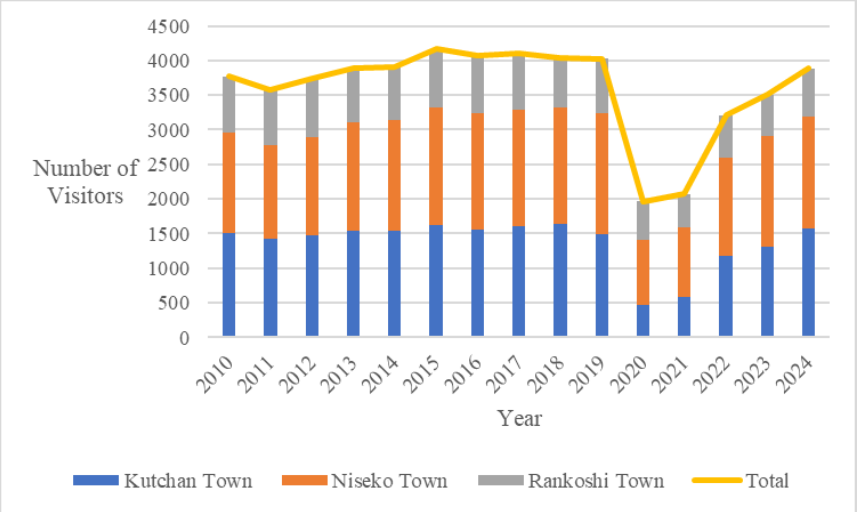


Figure 5-2 Total number of visitors by town in Niseko area, 2010-2024 (in thousands)

Source: Author, based on the data from Hokkaido Tourist Visitor Number Survey Report, 2010-2024

Regarding the number of visitors, Figures 5-2 and 5-3 present the number of total visitors and foreign visitors from 2010 to 2024, respectively. Before 2019, the number of foreign visitors experienced continuous growth. However, a drastic decline occurred in 2020 and 2021 due to COVID-19, which impacted foreign visitor arrivals most severely. By 2024, a clear recovery in tourism was

evident, as visitor numbers returned to pre-pandemic levels. Nevertheless, discrepancies persist among the three towns. Rankoshi Town consistently attracts fewer tourists than Niseko Town and Kutchan Town, particularly regarding foreign visitors. In terms of the geographic origins of foreign visitors in 2024, the top five source markets were Hong Kong (15.16%), Australia (13.62%), USA (13.52%), Singapore (8.21%), and China (8.18%) (Tourism Bureau, n.d.).

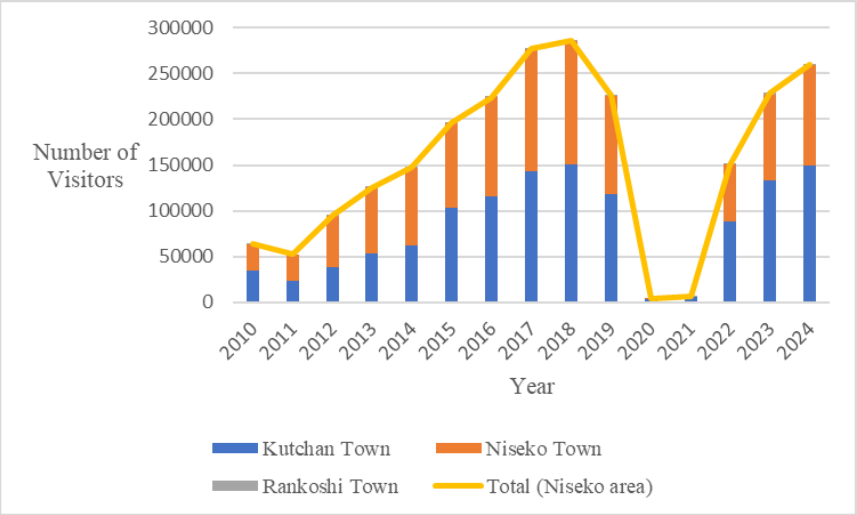


Figure 5-3 Number of foreign visitors by town in Niseko area, 2010-2024

Source: Author, based on the data from Hokkaido Tourist Visitor Number Survey Report, 2010-2024

Based on the aforementioned employment and tourism data, it is evident that despite the promotion of the Niseko area as a unified destination, significant differences exist among its constituent towns. While more than three-quarters of employment in Kutchan Town is concentrated in the tertiary industry, the primary industry remains vital for Niseko Town and especially for Rankoshi Town. Concerning tourism, although the region as a whole has entered a post-pandemic recovery phase, fewer visitors have visited Rankoshi Town, especially foreign visitors, both before and after the COVID-19 pandemic.

5.2.2 Data Collection and Content Analysis for Secondary Data

Data Sampling and Collection

Secondary data can have various sources and present non-reactive, unnoticeable, and non-

intrusive characteristics, compared with primary data, obtained through interviews (Jennings, 2001). The secondary data collected and analyzed here are, firstly, the contents published by local governments (Niseko Town (https://www.town.niseko.lg.jp/), Kutchan Town (https://www.town.kutchan.hokkaido.jp/) and Rankoshi Town (https://www.town.rankoshi.hokkaido.jp/)) with regard to climate change and relevant actions. Then, four Japanese newspapers, including Asahi Shimbun (朝日新聞), Hokkaido Shimbun (北海道新聞), Yomiuri Shimbun (読売新聞), and Nikkei Shimbun (日経新聞), were analyzed. These newspapers were selected based on the following considerations: Asahi Shimbun, Yomiuri Shimbun, and Nikkei Shimbun were chosen for their vast national circulation, as they are the three most widely read newspapers in Japan. In contrast, the Hokkaido Shimbun was included for its strong regional focus. Since 2015 was a landmark year for international policy shaping, such as the adoption of the Paris Agreement and the 17 SDGs, this study selects the subsequent 10-year period (January 1st, 2016, to December 31st, 2025) to examine how the Niseko area and NPB have taken adaptive actions to climate change.

Furthermore, utilization of secondary data and the below-mentioned primary data constitutes data triangulation. According to Decrop (1999), triangulation can be understood as investigating a specific phenomenon or research objective by utilizing diverse databases to enhance validity. "Information coming from different angles can be used to corroborate, elaborate or illuminate the research problem. It limits personal and methodological biases and enhances a study's generalizability" (Decrop, 1999, p.158).

Data Analysis: Content Analysis

This study applies a qualitative content analysis to analyze the secondary data. Given its broad applicability in research domains where textual analysis is needed (Holsti, 1969), content analysis is defined by Krippendorff (1980) as "a research technique for making replicable and valid inferences". Content analysis was first regarded as an objective and neutral method for quantitative description of

the content, for example, counting the number of times a word appears (Marshall & Rossman, 2016). However, the method has gradually evolved to incorporate interpretations of content, hence explicitly recognizing the subjectivity of the researcher (Ahuvia, 2001). This approach is widely referred to as qualitative content analysis, which moves beyond simple word counts to categorize diverse narratives into coherent themes based on their conceptual similarities, through intensive scrutiny of textual data. Hsieh & Shannon (2005) state three approaches to qualitative content analysis: conventional content analysis, directed content analysis and summative content analysis. In this study, directed content analysis is adopted, where the researcher starts to code immediately with the predetermined codes. Data that cannot be coded were analyzed later to check if they belong to new categories or present as subcategories of existing coding (Hsieh & Shannon, 2005)

In tourism research, content analysis has been used within a range of contexts for different purposes, such as identifying various understandings of concepts or thematic trends (Hall, 2018). For example, Kitheka & Backman (2016) explored the trends of environmental sustainability in tourism policy in Kenya by employing summative content analysis to examine government planning documents. In addition, Richter (1980), did content analysis for three daily newspapers in Philippines for 4 months and pointed out that the newspaper served as a propaganda tool to cover the fact of martial law. In this study, newspapers over a decade were selected for content analysis, with the aim to clarify the trends of the situation undergone by the Niseko area in the context of climate change, including the issues they may have faced or will face in the future, possible adaptive actions, as well as roles played by various stakeholders, especially the NPB.

Regarding the content analysis process, relevant content published on local government websites and documents were scrutinized. With respect to newspapers, online newspaper databases also provide an efficient mechanism for content analysis, enabling researchers to search for keywords in Japanese across newspaper article bodies within a predefined data range (here for 10 years) (Hall & Valentin, 2005). Based on research questions, it can conclude that the key words would be ニセコ（Niseko, involving Niseko Area and Niseko Town）、倶知安(Kutchan Town)、蘭越(Rankoshi)、ニ

セコプロモーションボード(Niseko Promotion Board)、気候変動 (Climate Change)、温暖化 (Global Warming). There are two points that need to be clarified here. One is that the keyword “ニセコ” (Niseko) can appear in both news related to the Niseko Area and Niseko Town. As scrutiny would be conducted by the researcher after searching the keywords to avoid repetition of news, the keyword was Niseko at the time of searching. Besides, although the exact translation of “温暖化” is “global warming” in English and can be understood as one of the result of climate change, in Japanese language context, both “地球温暖化” (Global Warming) and “気候変動” (Climate Change) are employed to describe climate change issues (United Nations Information Centre, n.d.). Consequently, the samples were all articles from the four Japanese newspapers listed above including the words ‘ニセコ OR 倶知安 OR 蘭越 OR ニセコプロモーションボード AND 気候変動’ and ‘ニセコ OR 倶知安 OR 蘭越 OR ニセコプロモーションボード AND 温暖化’ (Hall & Valentin, 2005).

Another important element during the content analysis is the variables (codes) utilized when undertaking content analysis. As mentioned above, predetermined codes were utilized when carrying out content analysis. For newspaper analysis, Lynch & Peer (2002) published a guide for newspaper content analysis, referred to by Hall & Valentin (2005) when they investigated what a local newspaper addressed regarding terrorism and tourism before and after the 11 September attacks. The authors utilized codes such as presentation and placement and paid attention to some statistical information, such as the frequency of articles mentioning keywords. However, this research focused on more qualitative aspects, the variables chosen were date, place, actors, and actions. The first two codes were based on the guidebook of Lynch & Peer (2002). The last two codes were based on research questions and the literature review. The reason for this choice is that Lynch & Peer (2002) used the code “theme” (e.g. “Politics-Police/crime/courts/legal (p. 19)”) to clarify what kind of story the article tells. However, as the keywords showed, the articles selected would be all about climate change, this code appears meaningless for the researcher. What the research focuses on is “who (actors) has done what (actions)”. The variables “actors” and “actions” were thus chosen. In addition, although content and documents published by local governments do not belong to newspapers, these five codes were used as

well to maintain consistency. The results of content analysis will be presented in Chapter 8.

Limitations of directed content analysis emerge in two dimensions: first, researchers easily approach the data with an informed bias embedded in the framework or theory that is being used. Consequently, they are more likely to identify evidence that supports the theory while overlooking non-supportive data. Second, the contextual elements of a phenomenon can be easily obscured if a theoretical framework is excessively prioritized (Berkovic, 2023). Regarding the directed content analysis in this research, the prefixed codes remain general words, such as “global warming”, rather than being anchored in a specific theory. In addition, the contextual elements of the phenomenon concerning climate change have been detailed in Chapter 3, effectively mitigating these inherent shortcomings.

5.2.3 Data Collection and Thematic Analysis for Primary Data

Data Sampling: Snowball Sampling

Snowball sampling was employed to identify and select the ten tourism stakeholders who are directly or indirectly involved in Niseko’s tourism (Although NPB directors are also vital tourism stakeholders in Niseko, this study distinguishes between the two groups by referring to these ten interviewees simply as “tourism stakeholders”). As defined by Noy (2008), this method allows the researcher to access information via referrals from previous participants. It is particularly utilized to overcome difficulties of reaching participants where the researcher may not be informed about formal or informal ‘network connections’ (Jennings, 2001, p.140). In the context of this research, the researcher occupied an “outsider” status relative to the Niseko tourism stakeholders’ social network. Consequently, snowball sampling functioned as a vital tool for traversing these network boundaries “because snowball sampling necessarily involves social networks” (Noy, 2008, p.335), thereby facilitating a deeper exploration of Niseko’s destination resilience in the face of climate change.

Despite the convenience of snowball sampling, several limitations remain evident. As mentioned above, snowball sampling is dependent on the researcher’s personal resources and contacts

(Parker et al., 2019). While some groups may be overrepresented in a sample, another group may be underrepresented (Parker et al., 2019). In this research, this limitation is manifested by the absence of some interviewee groups, such as ski resort managers and tourism stakeholders from Rankoshi Town. Although techniques like diversifying sample seeds and persisting with reluctant interviewees can mitigate these shortcomings (Kirchherr & Charles, 2018), their application in this research was constrained by practical limitations. However, as mentioned in Section 5.2.2, data triangulation used in this research limits the biases of this sampling method and strengthens the study's generalizability.

Data Sampling: Purposive Sampling

Purposive Sampling was employed to identify and select the three interviewees from the NPB. Often termed "judgmental sampling," purposive sampling is characterized by the researcher's subjective evaluation in determining the specific participants or units most relevant to the research. The researcher evaluates candidates based on their specific knowledge or how closely that aligns with the research objectives, ensuring that the chosen units are best suited to address the study's core questions (Jennings, 2001). Given that one of the research questions is related to NPB's organizational resilience as well as its role in Niseko's destination resilience to climate change, it is necessary and logical to target directors of this organization to collect relevant data through semi-structured interviews, which will be discussed below. Ultimately, three directors agreed to participate in the interviews. Table 5-3 shows the profiles of all interviewees.

Table 5-3 Profiles of interviewees: Tourism stakeholders and NPB's directors

Interviewee	Gender	Age	Hometown	Place of Residence	Duration of Current residence	Occupation
A	Female	40s	Canada	Kutchan Town	20 years	CEO of Private Company / Director of NPB

B	Male	40s	United Kingdom	Niseko Town	13 years	COO of Private Company / Director of NPB
C	Male	60s	Tokyo (Japan)	Niseko Town	6 years and half	Senior Manager of Private Company/ Director of NPB
D	Male	Early 30s	Saitama-Ken (Japan)	Kutchan Town	3 years	Hospitality Staff
E	Male	Mid 30s	Indonesia	Niseko Town	3 years	Hospitality Staff
F	Male	Early 30s	Taiwan	Kutchan Town	7 years	Hospitality Staff & Ski Instructor
G	Male	Early 40s	United Kingdom	Niseko Town	9 years	Local Business (Real Estate Consulting Firm) Owner
H	Male	Late 40s	Canada	Kutchan Town	14 years	Local Business (Real Estate Consulting Firm) Owner
I	Female	Late 30s	Nagoya (Japan)	Niseko Town	1 year	Staff of Local Government (Sustainable coordinator of Commerce and Tourism Division)
J	Female	Early 40s	Sapporo (Japan)	Niseko Town	5-10 years	Local Business (Journal Publishment) Owner
K	Male	Early 40s	Australia	Niseko Town	15 years	Local Business (Journal Publishment) Owner
L	Female	Mid 40s	Eastern Hokkaido (Japan)	Kutchan Town	1 year	Tourism Association Coordinator (Kutchan Town)

M	Female	Early 30s	Malaysia	Kutchan Town	3 years	Hospitality Staff

Source: Author

Data Collection: Semi-Structured Interview

The semi-structured interview serves as a structured communicative process tailored to meet specific research goals and contextual requirements (Patton, 2015; Veal, 2011). In this study, semi-structured interviews were employed to investigate Niseko's tourism stakeholders' perspectives regarding destination resilience to climate change. Furthermore, this approach sought to capture the views of NPB's directors on organizational resilience and NPB's roles in destination resilience to climate change. Moreover, semi-structured interviews possess flexibility to enable interviewees to express themselves freely while allowing the interviewers to change the order of questions, ask supplementary questions, and invite respondents to explain the answers (Jennings, 2001). Such an approach is especially suitable when the potential interviewees are limited (Saunders et al., 2009; Veal, 2017), which has been the case for this research due to the limited number of directors of the NPB and the difficulties of accessing them, as well as Niseko's tourism stakeholders. Moreover, the characteristics of semi-structured interviews align with the research paradigm of this study. Jennings (2001) concluded that multiple realities (ontology) can be revealed by semi-structured interviews. Besides, both subjective epistemological and transactional axiological stances taken by semi-structured interviews allow for cultivating rapport and ensuring the active contribution of individuals within a study (Jennings, 2001).

The semi-structured interviews for this study were conducted in two phases: from April to June 2022, and from July to September 2025. Before the interviews, all interviewees were requested to select their preferred interview mode, choosing between an online format or a face-to-face meeting. To ensure participants could express themselves freely and comfortably, they were invited prior to the interview to choose either English or Japanese as the interview language. Additionally, informed consent was obtained to record the entire interview with the help of different tools: web software in

online interviews and the recording pen in face-to-face interviews. Permission was successfully granted by all interviewees. Regarding ethical protocols, all interviewees were explicitly informed that the interview contents would be utilized strictly for academic purposes. To guarantee anonymity, no identifying information, such as names or specific workplaces, was collected. Following each session, interviewees provided formal confirmation to verify the accuracy of the interview process and their corresponding responses.

In the post-interview phase, the recordings were transcribed verbatim. To ensure the descriptive validity of the transcriptions, each transcript was checked three times against the original audio files. To safeguard data security and confidentiality, digital files were stored on a password-protected personal computer while physical materials (including the recording pen) were secured in a locked drawer, ensuring that only the researcher could access the empirical data.

Regarding the disadvantages of semi-structured interviews, criticism mainly revolves around their subjective epistemological approach and a transactional knowledge-based axiology (Jennings, 2001). However, as noted in Section 5.1, this study adopts an interpretive research paradigm, where epistemology remains subjectivist, and axiology is characterized by transactional knowledge. This alignment mitigates, to a certain degree, the aforementioned shortcomings embedded in semi-structured interviews. Another limitation relates to the lack of replicability of the interview process and its results stemming from the unique social interactions between the researcher and the interviewees. Nevertheless, the previously discussed data triangulation addresses this method bias by utilizing various data sources (newspapers and official documents as secondary data in this study) alongside the interviews, thereby strengthening the overall validity of the research.

Data Analysis: Thematic Analysis (TA)

Thematic analysis (TA) is utilized to analyze the data collected through semi-structured interviews. TA has been considered an experimental approach that pays attention to what participants think, feel, and do and is supported by the theoretical assumption that language represents reality,

whether understood as a single objective one or as the perspectival reality of individual participants (Terry et al., 2017). As mentioned above, this study focuses on interviewees' answers to understand Niseko's destination resilience and NPB's roles in destination resilience to climate change, which aligns with the experimental approach. Moreover, compared with the TA emphasizing coding reliability, the TA employed in this study is rooted more in a qualitative paradigm (Kidder & Fine, 1987), which means coding and theme development are considered as subjective and interpretative processes, and there is no "correctness" for the outcomes (Terry et al., 2017). The analysis carried out by the researchers is based on their engagement with data and informed by the relevant theoretical frameworks (Terry et al., 2017). Within this research, the themes were developed through deep engagement with the data, and the resulting analysis is grounded in existing conceptual and theoretical frameworks, of which the analysis is presented in detail in Chapter 9. This TA approach is also defined as Big Q TA by Terry et al. (2017). Furthermore, the authors underlined the flexibility of TA, which allows for its integration into various ontological frameworks, including the relativist ontology of this study.

The flexibility of TA is also represented by the approach to data as well as analysis (Terry et al., 2017). Terry et al. (2017) emphasize that the data can be processed inductively or deductively. The inductive approach (data-driven) is characterized as a "bottom-up" process where codes and themes emerge from the data. However, as Braun & Clarke (2006) note, this is never entirely objective, as researchers inevitably interpret through their own theoretical lenses. Conversely, a deductive approach (theory-driven coding) follows a "top-down" logic, utilizing pre-existing theoretical frameworks to guide the identification and clustering of meanings during the coding process (Braun et al., 2015). Researchers in previous studies (e.g., Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006; Terry et al., 2017) emphasize the importance of adapting the approach to the analytic purpose and research question. In this study, a hybrid approach was adopted: several theory-driven codes were determined based on the existing theoretical frameworks, which is a deductive approach. The data-driven coding, which means the inductive approach, was applied in the coding process after becoming familiar with

the data. The discussion was also largely based on results from both theory-driven codes and data-driven codes, as well as developed themes. In detail, the TA process is divided into eight phases, as shown in Table 5-4.

Table 5-4 Process of thematic analysis

Phase	Description of the Process
1. Formulation of codes based on existing literature	Existing theoretical frameworks can help formulate initial codes, according to Boyatzis (1998). In this study, the pre-defined codes are such as “actions expected to be taken by governments” for ten Niseko tourism stakeholders, “roles of NPB in destination resilience” for three directors of the NPB. These initial codes were formulated based on existing literature reviewed in Chapters 2- 4 and relevant to the research questions. They also serve as a foundation for organizing data-driven codes generated in the next phases.
2. Familiarization with data	Familiarization with data is the preliminary step to enable researchers to gain insight into a substantial amount of data(Terry et al., 2017). In this research, the transcription of interview data facilitated the researcher’s initial immersion into the dataset, which was further deepened through iterative readings of the transcript.
3. Coding Conduction	Data were coded systematically across the whole dataset, collating data relevant to each pre-defined code (Boyatzis, 1998; Braun & Clarke, 2006). According to Terry et al. (2017), this process provides a systematic and exhaustive creation of meaningful labels attached to specific segments of the dataset, which were relevant to the research questions. This process has been realized with the software NVivo. The pre-defined codes were also entered in NVivo and have been mapped to relevant segments which can most represent the codes.

4. Coding revision and data-driven coding implementation	The focus of this phase is to check the appropriateness and applicability of codes. It revolves around verifying that the codes reflect the underlying meaning of the data and confirming that the application of these codes is consistent throughout the dataset (DeCuir-Gunby et al., 2010; Terry et al., 2017), data-driven coding was also carried out, and inductive codes were attributed to data excerpts that described emergent concepts or new ideas identified within the interview transcripts (Fereday & Muir-Cochrane, 2006). The process is iterative and flexible (Terry et al., 2017), achieved by multiple meticulous readings of each interview transcript. Phase4-7 was also achieved with the help of the software NVivo.
5. Constructing themes	As a hybrid approach was applied in this research, similarities and differences were identified among both theory-driven codes and data-driven codes to investigate themes (Boyatzis, 1998; Crabtree & Miller, 1999; Terry et al., 2017). This phase also involved a continuous and non-linear process to confirm the tentative relationship between themes (Fereday & Muir-Cochrane, 2006).
6. Reviewing themes	At this phase, the emphasis shifts gradually from a hybrid thematic analysis toward an inductive approach, which allowed for identifying and coding emergent themes that were inherent in the primary data (DeCuir-Gunby et al., 2010; Fereday & Muir-Cochrane, 2006; Terry et al., 2017). The work has been divided into several parts. Reviewing and refining themes at two levels: The first level includes reviewing themes at the level of coded data segments to check if they demonstrate conceptual consistency. The second level involves reviewing themes at the whole dataset level to check if individual themes are grounded in the whole dataset, but also whether the overarching thematic structure accurately encapsulates the collective meanings within the dataset (Braun & Clarke, 2006).

7. Defining and naming themes	As the last phase before producing the report, the aim of this phase is to ensure "…clarity, cohesion, precision and quality of the developing TA" (Terry et al., 2017, p.31). By defining and refining, the essence of each theme and the themes overall was identified, and what aspect of the data each theme represents was determined. A theme should neither be overly expansive nor encompass too many diverse elements (Braun & Clarke, 2006). Another point that should be confirmed is where a subtheme exists. A subtheme shares the same central organizing concept but captures the different facets of the theme (Terry et al., 2017). A practical way was to give structure to complex and large themes and demonstrate hierarchy of meaning (Braun & Clarke, 2006) which in this research has been carried out with the help of NVivo.
8. Producing the report	"It is important that the analysis provides a concise, coherent, logical, non-repetitive and interesting account of the story the data tell – within and across themes (Braun & Clarke, 2006, p.23). In this study, the analysis adopted an illustrative style. According to Terry et al. (2017), "if data extracts are used primarily as examples within the analytic narrative, evidence from the data that illustrates key elements of the story, they are being used illustratively" (p. 32). The findings obtained through TA will be presented in Chapters 6 and 7, and the analysis will be shown in Chapter 9.

Source: adapted from Boyatzis (1998), Braun & Clarke (2006), Fereday & Muir-Cochrane (2006)

5.3 Key Insights in This Chapter

This chapter outlined the methodology of this research. Qualitative methods, encompassing the case study and semi-structured interviews, alongside the qualitative interpretation of empirical materials via content analysis and thematic analysis, correspond to the interpretive research paradigm in which this research is rooted. In addition, utilizing primary data and secondary data ensures data triangulation, which contributes to mitigating method bias and enhancing the research validity. The detailed exposition of the research design not only helps readers understand how the subsequent findings and conclusions were derived but also provides insights into future researchers investigating similar research questions. In Chapters 6 and 7, the empirical findings gathered from interviews with three directors of the NPB, which is the DMO for the Niseko area, and ten stakeholders will be

presented. These findings offer a robust foundation for answering research questions.

Chapter 6 Findings: Interviews with the Directors of the Niseko Promotion Board (NPB)

This chapter focuses on the perspectives of three directors from the NPB (Interviewee A, Interviewee B, Interviewee C). The interview questions are divided into two main parts: Section 6.1 presents NPB directors' perceptions of the DMO's organizational resilience and potential barriers. It also addresses the strategies carried out by the NPB to adapt to climate change, its role in raising public awareness, as well as the marketing activities aimed at adapting to climate change. Section 6.2 explores the connection between the NPB and other stakeholders, as well as overall destination resilience to climate change. Additionally, they were questioned regarding the NPB's role in leadership and information sharing. Besides, their perceptions of local governments as well as current and future expected actions taken by other stakeholders (same questions as in Chapter 7) were required.

6.1 Organizational Resilience of the NPB and Its Roles in Climate Change Adaptation Initiatives

Perception of the NPB regarding NPB's organizational resilience and potential barriers

The interviewees were first asked to evaluate the organizational resilience of NPB and then identify the possible barriers to organizational resilience. All three interviewees underlined the marketing and promotion roles of NPB while Interviewees A and B also emphasized that snow and skiing resorts were still the key attractions when they promoted the Niseko area, indicating the heavy reliance of Niseko on winter tourism:

> So, our DMO, NPB, is for the promotion of the area as a whole. Also, our winter business is affected by climate change quite a bit, although Niseko still has a lot of snow, so we can still promote the area as one of the best ski resorts… but we're very dependent on this weather. The weather dictates whether or not people want to come for skiing. So as a destination, most skiers do not choose the destination for its cultural interest or its culinary, you know, excellence, they choose it because they want to do that exact sport. So, they want to ski or snowboard. Now, without snow, this becomes very difficult. (Interviewee A)

Enhancement of organizational resilience mentioned by Interviewee A and B was consistently

likened to promotional strategies. Interviewee A explained that the DMO may need to modify its promotion strategies and refine the language used in marketing materials to better align with potential future weather conditions that differ from what the destination has traditionally experienced.

In contrast, Interviewee B highlighted the focus on green season promotion:

> But you know, as a DMO, we have to remember that we're here for the destination, and that not necessarily entails skiing entirely. So, in the last 12 months, we've shifted the organization to focus more on non-ski or green season activities, with a view to the area becoming a destination that's not just famed for the snow conditions. This shift essentially contributes to a resilience strategy for climate change by building destination awareness related to not only winter sports, which are pretty highly at risk for climate change. (Interviewee B)

The barriers identified by these two interviewees were also different. Interviewee A stressed the lack of stewardship of nature because "the governments need to make sure that an economy is very strong, which sometimes is, in conflict with the interest of nature preservation." (Interviewee A) On the other hand, Interviewee A emphasized that "the barrier for us will be whether the area can develop quickly enough for us to sustain a growth outside of winter sports-related activities." Another interviewee considered that resilience is the responsibility of the town, not the NPB, since the NPB is just a promotion organization, as mentioned before. Moreover, Interviewee C underlined the dearth of organizational resilience during the crisis of COVID-19. However, withdraw from the membership of NPB occurred during the pandemic and led to a decline in publishing advertisements in *Wine and Dine,* a booklet published by NPB for advertising restaurants in the Niseko area. The reason is "There is no point in advertising when no customers are coming" (Interviewee C). However, after COVID-19, NPB has discussed whether they should stop printing this booklet and planned to replace it with a newly designed website. The digitalization can be hence realized: "this isn't something sophisticated like a business continuity plan-it's simply digital transformation" (Interviewee C).

About NPB's strategies to adapt to climate change

Concerning the strategies developed by DMOs to adapt to the impact of climate change, both Interviewees A and B underlined the roles of DMO would be promoting the strategies initiated by other tourism actors because "developing strategies to adapt to impacts of climate change because that's not necessarily what the organization is designed to do, but we are designed to promote those strategies, so we're the best organization to get the word out." (Interviewee A). Interviewee A noted that this can be realized by leveraging the strengths of NPB: ability to reach international visitors and its strong membership with local businesses. "So, we should play to our strengths in that sense and be the organization to be able to promote those ideas and to get people on board." (Interviewee A). In addition, Interviewee C pointed out that "the discussion remains limited within the organization to adapt to the gradual change of climate" but suggested that encouraging tourists to experience Niseko in different ways by carrying out alternative promotion strategies could be a viable approach:

> In March, the snow quality is definitely not as good. On the other hand, the number of days when Mount Yotei is clearly visible increases a lot. So, we try to raise awareness by saying that spring skiing offers a different way of enjoying the area. It's not a dramatic message, but we do conduct this kind of outreach—encouraging people to enjoy Niseko not only for the snow quality but also for the many other ways they can experience the destination. (Interviewee C)

About NPB's role in raising awareness and encouraging innovation activities

Regarding the role of raising awareness about climate change played by NPB, three interviewees possess relatively negative opinions. Interviewees A and B accentuated what NPB can do remains at the micro level, such as "the hosting of local food festival" (Interviewee A) and "reducing the carbon impact of tourism activities while people are here". Besides, Interviewee C put more emphasis on overtourism that NPB is currently dealing with: "so, regarding overtourism, we have been proactively carrying out awareness-raising activities, for example addressing waste-management issues. I think we are working more on matters related to sustainability." (Interviewee C)

The interviewees were then asked for their opinions about the collaboration between NPB and other local stakeholders to encourage innovative actions to cope with the impact of climate change. Both Interviewees A and B showed a positive attitude. Interviewee A insisted that "if the NPB was able to collaborate more closely with some of the governmental organizations or the other tourism organizations, we could share good ideas and good feedback from whatever input that we have." Besides, Interviewee C remains skeptical concerning this point as "our main role is to figure out how to bring people to Niseko, so our focus is really on marketing and promotion." (Interviewee C). The promotion of the green season in Niseko and some sustainable initiatives, such as tree planting activities and raising relative awareness, were mentioned by Interviewee C, in which NPB can be involved.

About contribution of marketing activities to climate change adaptation

In terms of adaptation to climate change through marketing activities, both Interviewees A and C noted their emphasis on sustainability, especially the nature of Niseko. On the one hand, apart from the promotion aiming to increase visitors in March or spring, Interviewee C also underlined a focus on nature by representing the new logo and branding strategy:

> We have also been adjusting our messaging and branding approach. In fact, when we redesigned the website, we changed the branding at the same time. The new branding logo is 'Niseko by Nature'. Previously, as you may have seen, the logo used the image of Mt. Annupuri. We shifted from that visual representation to a verbal one— 'Niseko by Nature'. Why 'nature'? Because Niseko's value today comes from its natural environment. Nature nurtures the food we eat, so delicious local food is also part of this 'nature'. And Niseko offers many ways to enjoy nature—not only in winter but also in summer, such as refreshing outdoor activities, hiking, biking, and so on. For us, nature is essential. The new logo and branding reflect our intention to promote Niseko's natural environment more strongly. (Interviewee C)



Figure 6-1 Old logo (left) and new logo (right) of the NPB
Source: Niseko Promotion Board

On the other hand, the role of the NPB is more supportive and "can be a voice for any campaign and spread the news so we can create a buzz around something". (Interviewee A). Interviewee A stated that through the membership system, the NPB can also help their members, which are local industries, to know the campaign and capitalize on it. Interviewee B shared a similar point of view that "the marketing activities should be reflective of the products which have a climate consciousness, ultimately respond to climate change.

6.2 NPB's Roles in Enhancing Destination Resilience and Its Interactions with Stakeholders

About network with other stakeholders

The interviewees were then asked about the contribution of networks between NPB and local stakeholders to climate change adaptation. Both Interviewees B and C underlined the collaboration between different tourism actors, including other tourism associations, as well as local governments at the regional level (with Niseko Town and Kutchan Town). Moreover, these two interviewees highlighted the collaborative initiatives toward the sustainability of the Niseko area. For example, Interviewee B emphasized the campaign settled to make people not only enjoy the region but also respect the region. Encouraging the use of public transportation is also mentioned by the interviewee as a concrete example. Interviewee C gave more concrete examples such as planting trees, garbage management, and etiquette measures which relate to overtourism. Besides, Interviewee B suggested

that NPB should work closely with all other tourism associations to share the same goal and a unified working plan:

> "And what I've noticed at working with the NPB is that it's not always automatic that the organizations share the goals. Everybody feels like they should make their own plan, and if everybody has an individual plan for how this should look, they're all working in the same direction, but not together, which is a waste of resources. It's often a waste of time. So, I feel that if we can cooperate more closely with all of those different entities, there would be a better way of communicating through the organizations that would enable a much, much stronger community and then a much stronger plan for how to make that happen." (Interviewee A)

About NPB's role in sharing information and leadership

In light of the NPB's role in sharing information and knowledge with local stakeholders for destination resilience to climate change, Interviewees B and C thought that NPB should not assume this role. Interviewee B underlined that "they carefully defined our focus and expertise" and "don't have the funds and expertise for this function" compared with other organizations, such as JNTO (Japan National Tourism Organization). Interviewee C also emphasized that the way the NPB works is "get involved in the community as part of awareness-raising effort". Interviewee A highlighted the willingness to share information with local stakeholders and then an expected data-sharing system initiated by local authorities because it can contribute to better systems as well as more informed decision-making and then benefit all parties involved.

As to the leadership of the NPB in the destination resilience of the Niseko area, both Interviewees A and B underlined the strong leadership among the members of the NPB because of the membership system. As noted by Interviewee A, "I think that direct contact with businesses is a huge advantage for anybody looking to create a strategy, because you have everybody on board." Interviewee B underlined that the role of NPB is vital in building destination branding and delivering the destination message by working with sustainability and promoting an all-season destination for the Niseko area. On the other hand, Interviewee C also mentioned the membership system of the NPB and suggested that, as one of the financial resources comes from the membership, the priority of NPB is to

"demonstrate value to our members." (Interviewee C). Thus, the role of the NPB, according to Interviewee C, is to support promotional activities for the members, and assist the town when they launch projects.

Perceived local governments' policies on destination resilience to climate change

In terms of policies of the local governments including Niseko Town, Kutchan Town and Rankoshi Town on destination resilience to climate change, difference between the implementation of policies in relation to sustainability between Niseko Town and Kutchan Town has been pointed out by Interviewee B and C. Both of them agreed that Niseko Town remains more proactive in this regard. For Kutchan Town, Interviewee C expected much broader and more effective controls over the issues of sustainability, particularly those related to land development, which he cited as an illustrative example. Interviewee A emphasized the crucial role played by DMO in strengthening cooperation between various towns and expected the Shiribeshi, which is the sub-prefecture at a larger scale comprising these three towns and other towns, to take more responsibility to promote the coordination at a larger scale because cooperation becomes easier if the cooperation directives are issued by government bodies at higher levels.

Perceived other stakeholders' roles in enhancing destination resilience to climate change

The interviewees were also asked for their views on the actions that other stakeholders, such as residents, visitors, etc., should take. As mentioned above, this question was also asked to the other ten stakeholders. Three interviewees emphasized different aspects. Interviewee A noted that local governments should act as responsible stewards of the natural environment, and the local government remains unprepared to face the fast development of the area. The interviewee emphasized that the issue of overtourism actually stems from this unpreparedness. Besides, the interviewee pointed out that the area is out of alignment with some global sustainability standards, such as the excessive use of plastic, and should align with global trends that are happening in climate change. Moreover,

Interviewee B indicated that the hospitality does not pay attention to sustainability, especially in relation to plastic use, print media and inadequate garbage sorting. So, the key point is that both public and private sectors should focus on improving infrastructure for mitigating climate impact deriving from tourism, as most visitors do not pay attention to sustainable behavior such as garbage sorting when they stay in hotels. The cooperation between the public and private sectors was also emphasized concerning this point by Interviewee B. Moreover, Interviewee C pointed out that the focus should be given to the water problem, as it has been dealt with in a very ad hoc manner with the large hotel construction projects that have experienced a boom in this area.

Perception on destination resilience and potential barriers

At the end, three interviewees were asked about their perception of the destination resilience of the Niseko area to climate change and to identify the barriers. All three interviewees acknowledged that climate change will impact the snow of Niseko area, and the destination needs to respond to climate change one day. Both Interviewees A and B agreed that preparation for climate change is crucial. Corresponding to this regard, Interviewee A stressed again that unpreparedness leads to the current issue of "overtourism". And preparedness for climate change should be initiated by all stakeholders and address all actors involved in tourism, including residents, as well as the economic and ecological aspects under the scenario of increasing tourist arrivals and derived adverse impacts. Besides, Interviewee A also emphasized that, compared to ski destinations in other countries that have been closed due to climate change, the impacts of climate change on the Niseko area remain still not obvious, which can be a barrier to destination resilience. Interviewee B further stresses again that tourism, mainly relying on snow at the current stage, will only survive if there is visitation around the year. The barrier identified by the interviewee is the ability of the area to provide sustainable tourism products, which means encouraging the transformation of the destination to an all-year-round type and continuously attracting visitors. The interviewee also underlined the lack of planning at the level of central government that should provide a long-term sustainable tourism outlook for all of Japan.

Besides, Interviewee C emphasized the lack of awareness about climate change issues among the public. And the interviewee also highlighted that the NPB is a paid membership-based organization. This system decided that members expect value in return, and then the role of the NPB is quite limited, according to Interviewee C.

6.3 Key Insights in This Chapter

This chapter examines the perspectives of NPB directors concerning NPB's organizational resilience, its connections with other stakeholders, and its roles in enhancing destination resilience to climate change. Based on these findings, two main points can be highlighted. First, NPB's organizational resilience and its adaptation roles to climate change are anchored in its core functions such as promoting the Niseko area and conducting marketing activities for its member businesses. Second, the directors emphasized the importance of government leadership, spanning from the national to local level, as well as the cooperation among stakeholders at the local level. This finding aligns with the literature discussed in Sections 3.4.3 and 4.3.2. While Chapter 9 provides a detailed discussion, the next chapter presents the perceptions of climate change held by ten key stakeholders, alongside the implemented and anticipated future actions of other stakeholder groups.

Chapter 7 Findings: Interviews with Stakeholders

In this chapter, the findings are derived from the responses of all ten interviewees to interview questions. The use of semi-structured interviews not only allows the researcher's prior assumptions to be confirmed or challenged, but also facilitates the discovery of new information, topics, or perspectives that enrich existing knowledge, thanks to the flexibility and spontaneity inherent in this kind of interview (Karatsareas, 2022). Consequently, inductively generated (data-driven) themes are also presented. The tables below summarize the findings, with the left columns showing the codes and the right column providing illustrative quotations representing similar views. Considering the representativeness and relationship between codes and future interpretations, the code including only one voice of interviewees would not be represented in the tables but would be taken into account in the overall analysis in Chapter 9. All findings will be divided into two sections: Section 7.1 demonstrates the perception of stakeholders regarding climate change and its impact on the living environment. An inductive theme, stakeholders' perception of key natural resources in Niseko, is also presented. Subsequently, section 7.2 shows the perceived actions that have been implemented and are expected to be implemented by other groups of stakeholders. In addition, perceived vulnerability, which is also an inductive theme, is shown in section 7.2 as well.

7.1 Stakeholder Perceptions of Climate Change and Living Environment Impacts

For the questions about perception of climate change and its impact, as well as the perception of natural resources in the Niseko area, answers from all interviewees, including ten interviewees and three directors, were represented (Table 7-1, Table 7-2). The interviewees were first asked whether they felt the climate of the Niseko area had changed and whether climate change had influenced the living environment in Niseko (Table 7-1). All interviewees agreed that the climate in the Niseko area has changed. The overwhelming majority of participants underlined the hotter summers in recent years, while more than half underlined the impacts of climate change on snow, including the

shortening of snow seasons, decreasing snowfall, and poorer snow quality. Three interviewees also mentioned the occurrence of extreme weather. Regarding the impact of climate change on the living environment of the Niseko area, more than half the participants emphasized the increasing need for air conditioning. A small minority of participants highlighted the adverse impacts of climate change on agriculture as well. However, almost half of the interviewees doubt whether climate change is continuous. Some of them underlined that annual variations are common, but it remains uncertain whether these changes indicate a long-term issue. Several interviewees also considered that the Niseko area possesses a competitive advantage under the current conditions of climate change, compared with ski destinations in other countries which have already been adversely affected.

Besides, as Table 7-2 shows, most interviewees noted the significance of powder snow and skiing sports as the main attraction of the Niseko area, with the accent on the livelihood related to this natural resource by a few interviewees. The whole nature of the Niseko area has also been considered attractive by a small portion of participants.

Table 7-1 Climate change perception and its impact on living environments of Niseko

Perceived Climate Change in the Niseko Area	
Hotter summer	“I think the main one is that summer is hotter than it used to be.” (Interviewee H)
Shortening snow season	“The snow starts later. When I came here 15 years ago, the snow began in 18- 22 November, but now, it starts in December.” (Interviewee K)
Decreasing snowfall	“Recently, we’ve been seeing more years with little snowfall.” (Interviewee C)
Poorer snow quality	“…the previous season has come up, and the snow was better, but it was not as good as before. So that was what I heard as well. It was not exactly the same powder snow that we have.” (Interviewee E)
Extreme weather	“Also, I’ve noticed that I've lived here for a long time and that we, Hokkaido, never really had so many typhoons.” (Interviewee A)

Negative Impacts of Climate Change on the Living Environment of Niseko Area	
Increasing need for air conditioning	"For my daily life, I had to install an air conditioner in summer." (Interviewee B)
Negative impacts on agriculture	"And another thing is about agriculture. I have heard from some farmers that the potatoes were too small due to the excessive rainwater." (Interviewee J)
Uncertain Impacts on the Living Environment of Niseko Area	
Temporary influence	"Not really, because maybe, sometimes, it's just like one year. Yes, actually warmer, but next year like, go back to normal. So, we don't know if it's, like, long term, or just short term." (Interviewee F)
Positive Impact of Climate Change on the Niseko Area	
Competitive advantage under current climate change	"I have learned that skiing in France, and so the ski resorts are located at 1000 meters where they used to have the snow. But now they never get snow. From the perspective of Niseko, it would not be bad news." (Interviewee G)

Source: Author

Table 7-2 Perception of powder snow and nature of Niseko area

Perception of Powder Snow	
Significance of powder snow	"People here depend on snow as a means of making a living. Tourism is the main industry here." (Interviewee L)
Perception of Nature	
Importance of nature	"I think in Niseko, lots of people come here because they love nature in Niseko." (Interviewee I)

Source: Author

7.2 Stakeholder Perceptions of Current and Anticipated Actions Taken by Other Groups

Table 7-3 shows actions taken or expected to be taken by residents. Only six interviewees possessed positive attitudes towards actions that have been implemented, and these actions represented a divergence, meaning that the difference between the number of actions to reduce CO2 emissions and

that of other daily actions is not significant. Taken actions include reducing private-car use, saving energy, participating in street cleaning up organized by the community, reducing garbage, and being paperless. Each action was cited at maximum by two interviewees. Concerning the expected future actions for residents, four interviewees underlined strengthening education to increase awareness related to climate change or nature. “Garbage sorting and recycling” and “reducing the transport-related CO2 emissions” were all cited by three interviewees, followed by actions related to energy such as “improving energy efficiency” and “using renewable energy.”

Table 7-3 Perceived residents’ current actions and expected future actions

Perceived Current Actions	
Reducing the use of private cars	“Also, residents here do car sharing, for example, to drive kids to school.” (Interviewee G)
Big cleaning for streets	“In spring, residents of our community would organize to pick up the rubbish.” (Interviewee K)
Reducing garbage	“I think the local residents have tried very hard to reduce garbage.” (Interviewee F)
Expected Future Actions	
Strengthening education and improving awareness	“I also think education is very important and helpful to tell young children why we need this or that when facing climate change. And people also need to know why they need to do those actions from the beginning.” (Interviewee J)
Garbage sorting and recycling	“I think that the residents can do small things like respecting the rules of garbage deposit so that the government can practice the recycling process after.” (Interviewee D)
Reducing the use of private cars	“As I have said, people could try more car sharing.” (Interviewee G)
Actions related to energy	“People should try to save electricity and reduce the use of water as well” (Interviewee K)

Source: Author

The interviewees were then asked about the actions currently undertaken by local governments and those expected in the future to adapt to climate change (Table 7-4). With regard to current adaptations, four interviewees possessed a negative attitude toward current adaptive actions. However, five interviewees thought the local governments have carried out adaptive actions, among which "actions related to energy use," such as the use of renewable energy and energy saving, were emphasized by several interviewees. A few interviewees also emphasized the efforts of garbage sorting and recycling. As to anticipated actions, the opinions of interviewees show a convergence: seven interviewees among ten underlined the actions of raising awareness of climate change impacts and increasing information sharing and communication. From a practical perspective, interviewees underlined the importance of increasing public transport. In addition, interviewees also highlighted the leadership of local governments in practicing actions for tackling climate change. Besides, three interviewees suggested that local governments should implement the climate initiative effectively.

Table 7-4 Perceived local governments' current actions and expected future actions

Perceived Current Actions	
Actions related to energy	"I think the mayors of Niseko Town and Kutchan Town have statements as well to do much more to save energy." (Interviewee E)
Garbage sorting and recycling	"I think they are pushing very hard to separate garbage and do recycling." (Interviewee F)
Expected Future Actions	
Raising public awareness of climate change impacts and doing the information sharing	"If the government might be able to do at least the presentation of what impacts climate change and translate in multi-language. So, people could read it and understand it." (Interviewee G) "I think one important thing is information sharing not only for operators but also for the whole town. " (Interviewee J)

Increasing public transport	"Public transportation is one important point. Niseko Town and Kutchan Town have shuttle buses in winter for tourists to take them from their hotels to ski stations. Niseko Town also has its own skiing bus that residents could also use freely. But in summer, we only have the on-demand community buses, so increasing public transportation is something that we should do in the future" (Interviewee I)
Effectively implementing climate initiatives	"The government has a big vision, but they have to do more to realize it." (Interviewee J)

Source: Author

About the actions taken by local enterprises, all interviewees agreed that local enterprises have taken actions to adapt to climate change (Table 7-5). The current action most highlighted by half of the interviewees is the "implementation of green policies in hotels," such as using eco-friendly items and no daily cleaning plan in place. Some interviewees also talked about the "adaptations related to energy," including saving energy by switching off the lights when not using them and building highly energy-efficient buildings. In light of expected future actions, "actions related to energy were continuously mentioned by four interviewees, among which two emphasized the necessity of saving energy in night-skiing, and two highlighted improving energy efficiency for buildings. A limited number of interviewees have also put the accent on "reducing plastic use and increasing the use of eco-friendly items". Raising visitors' environmental awareness was also expected to be carried out by tourism businesses.

Table 7-5 Perceived local enterprises' current actions and expected future actions

Perceived Current Actions	
Implementation of green policies in hotels	"We used to use plastic things like plastic toothbrushes and straws, but we have changed them to things made of bamboo." (Interviewee D)
Actions related to energy	"And, of course, we are trying very hard to save energy, like turning off the light when no one is in the space, and we tried to control the temperature of the cooler or heater." (Interviewee F)
Expected Future Actions	
Actions related to energy	"So, I think that means that make sure your buildings are energy efficient." (Interviewee K)
Reducing plastic-use and using eco-friendly items	"For the tourism industry, I hope them to stop using plastic products." (Interviewee L)
Improving the awareness of visitors	". But I think at the same time, they should educate the tourists how the powder snow is important for the tourism of Niseko." (Interviewee D)

Source: Author

At the end, the interviewees were asked about the perceived current actions taken by tourists and those expected for the future (Table 7-6). Few interviewees thought that tourists have taken any measures at the current stage. Only one mentioned "participating in educational tours," while another mentioned "choosing public transportation". Regarding expected future actions, several interviewees also emphasized "using public transportation." In addition, some interviewees highlighted "education and promotion to improve awareness about climate change." Related actions include sharing information with tourists and carrying out promotions about climate change targeting tourists. A limited number of interviewees suggested that tourists should do "garbage sorting and recycling" and "respecting the local environment and culture."

Table 7-6 Perceived tourists' current actions and expected future actions

Perceived Current Actions	
Participating in educational tours	"I suppose that the educational tours have already been organized." (Interviewee I)
Choosing public transportation	"But tourists might take the bus to the onsen." (Interviewee K)
Expected Future Actions	
Using public transportation	"You could ask people to make sure that they just take a regular flight instead of chartering the flight; taking regular buses instead of private taxis when they come to Niseko from the New Chitose Airport." (Interviewee G)
Improving awareness of tourists about climate change impact by promotion and education	"When the guests arrive at the airport, we need to put a big poster of the SDGs or whatever that sustainability is in it." (Interviewee E)
Garbage sorting and recycling	"They could make sure that they separate rubbish properly, which enables the government to recycle instead of burning everything." (Interviewee G)
Respecting the local environment and culture	"I hope that they could respect the environment and our actions to protect the powder snow." (Interviewee D)

Source: Author

Regarding the vulnerability of the Niseko area perceived by the stakeholders (Table 7-7). Six interviewees underlined the lack of awareness among both residents and tourists, while four interviewees emphasized the unsustainable behaviors among residents and tourists, such as excessive use of plastic or reluctance to recycle waste by visitors. Furthermore, three interviewees pointed out that the destination relies heavily on winter tourism. In addition, "high GHG emissions resulting from travelling and skiing sports", "lacking information sharing and leadership initiated by local governments" and "other environmental sustainability issues" including water resources and land uses were given similar weight by three interviewees.

Table 7-7 Perceived vulnerability of the Niseko area to climate change

Lack of awareness among residents and tourists	"I'm talking with local people about climate change as I am working with them. But they are not interested in the environment, even though they rely on natural resources. (Interviewee L)
Unsustainable behaviors among residents and visitors	"For example, plastic. Plastic is not coming from nature. But if you go to convenience stores, you could see one strawberry, or one banana is covered by plastic." (Interviewee E)
Relying heavily on winter tourism	"I think Niseko is mainly a resort, yeah. So our competitive positioning against resorts in North America or against resorts in Europe is that we have this incredible amount of powder snow. That's our selling point. And that's really it at the moment. But what happens if, 15 years from now, that's not powder snow. it's all, you know, wet and heavy and yucky. Which, you know, probably is going to happen at some point. So, how do we fight that? And how do we also, you know, adjust our client call so people don't have that expectation. I think that's the reality: endless powder snow in Niseko would not be guaranteed." (Interviewee H)
High GHG emissions brought by travelling and skiing sports	"…skiing is not a very environmental hobby, so the truth is that many customers, especially the customers in Niseko, are international, they come here by plane and when they sit the lifts or use the lights for night skiing, they use the electricity, it would be a big carbon footprint. It is unavoidable, unfortunately." (Interviewee G)
Lack of information sharing and leadership initiated by local government	"It is a lack of apparently the information about what should we do from the governments." (Interviewee G)
Environmental sustainability issues (water resources and land-use)	"On the one hand, there is not only climate change to which we should pay attention but also the protection of water in Niseko." (Interviewee I)

Source: Author

7.3 Key Insights in This Chapter

This chapter presents the perceptions of ten stakeholders on climate change and its impacts, as well as implemented and anticipated adaptation actions taken by other stakeholder groups. The majority of these implemented actions and some anticipated actions focus primarily on decarbonization. Through a thematic analysis of the interview transcript, two new themes emerged: the perception of powder snow and perceived vulnerability faced by the Niseko destination. Powder snow perceived as the key natural resource, confirms the destination characteristics. Besides, inherent vulnerability such as a lack of awareness about climate change among visitors and residents reveals latent risks for the destination. The next chapter examines secondary data, including official documents issued by local governments as well as relevant newspaper coverage. As mentioned in Chapter 5, utilizing diverse data sources achieves data triangulation, ensuring a robust and comprehensive conclusion.

Chapter 8 Findings of Content Analysis

This chapter elaborates on the findings derived from analyzing official documents published by constituent towns of the Niseko area, as well as relevant newspaper articles. Conducting a content analysis for these secondary data complements the findings obtained from the primary data (Chapter 6 and Chapter 7) and further facilitates a more comprehensive conclusion. Specifically, Section 8.1 analyzes the official documents issued by the three local governments, followed by an examination of relevant newspaper contents in 8.2. Finally, Section 8.3 provides a synthesized analysis integrating the insights presented in both preceding sections.

8.1 Findings of Content Analysis: Official Documents Published by Governments

As outlined in the Methodology chapter, contents and documents published on the official website of Niseko Town, Kutchan Town, and Rankoshi Town would be analyzed individually, given the absence of a unified public authority encompassing all three towns.

Niseko Town

Selected as one of the “Eco Model Cities” in 2013, Niseko Town has started to publish the “Niseko Town Climate Change Mitigation Plan (Regional Policy)” in 2011 to advance initiatives to mitigate climate change. As a supplementary framework, the “Niseko Town Decarbonization Action Plan” was published in 2024 to achieve the net-zero goal by 2050. In 2020, Niseko Town published the “Niseko Town Declaration of Climate Emergency” in consideration of a significant reduction in snowfall happened in 2020 and the intensification of climate change. The town set the goal of achieving net-zero CO2 emissions by 2050 and formulated the “Niseko Town Climate Change Adaptation Policy” in 2021 (二セコ町, n.d.-a, n.d.-b). In 2024, the local government has enacted the “Niseko Town Climate Change Measures Promotion Ordinance,” which will take effect in 2025. Below, an analysis will be carried out document by document. In the analysis, actors and the specific actions they are expected to take will be clarified.

In the “Niseko Town Climate Change Mitigation Plan (Regional Policy)” (Mitigation Plan

RP), the actions initiated by the local government aimed to reduce CO2 emissions and addressed different actors, as shown in Table 8-1.

Table 8-1 Targeted actors and relative actions mentioned in mitigation plan (regional policy)

Residents/Industrial Sector	Wide Adoption of Renewable Energy	● Solar power generation ● Geothermal heat pumps ● Wood fuel stoves ● Snow/ice heat storage
	Replacement with High-Efficiency Equipment	● Energy-saving appliances, LED lighting, etc. ● Eco-residences ● Introduction of low CO2 emission buses
	Alignment of Policies	● Information provision ● Public awareness and promotion ● Subsidy System
Local Government	Introduction of Advanced Technologies	● Micro-hydroelectric power & LED streetlight installation ● Wood chip boilers & waste-heat recovery pumps for hot spring facilities ● Converting composting centers into energy plants ● Introduction of low CO2 emission buses
Tourism Sector	Introduction of Practical Technologies to realize significant CO2 reduction through renewable energy	● Heat pump installation ● Introduction of low CO2 emission buses ● Geothermal utilization and power generation ● Wood chip boiler installation
	Alignment of Policies	● Emission Regulations for new development ● Environmental consideration ranking certification ● Establishing the Regional Councils on Global Warming Countermeasures

Source: author, adapted from 二セコ町 (2011)

The content in Mitigation Plan RP indicates that energy saving and utilization of renewable energy are the core actions across all three groups of actors. However, the strategic emphasis varies by group. For residents and the industrial sector, the initiatives highlighted popularization. This entails the

widespread adoption of renewable energy sources such as solar power generation, alongside the replacement of existing equipment with highly energy-efficient ones. Furthermore, to correspond to the aim of popularization, the actions incorporate alignment of policies. These include information provision through the Niseko Town website and raising public awareness by organizing events with invited experts. In addition, the creation of a subsidy system was also underlined, such as those for replacing existing windows with highly insulated ones (ニセコ町, 2011).

The actions of local government itself serve as a model to promote the measures implemented by residents and businesses. The actions primarily revolve around utilizing renewable energy for public facilities through new technologies. With respect to the tourism sector, which has been underlined as a "priority sector", the introduction of practical technologies to facilitate the utilization of renewable energy was also incorporated into the plan. Besides, alignment of policies was also one of the actions which is different from that applied to residents/industrial sector groups. The alignment of policies here includes the formulation of development regulations and environmental consideration certification (ニセコ町, 2011).

Furthermore, the local government planned to implement primarily some measures to reduce CO2 emissions from a general perspective. For example, the local government planned to introduce advanced technologies into public facilities to facilitate the use of renewable energies. These measures aim to "visualize" the climate policies to raise public awareness concerning climate change. Similar measures include constructing complex-decentralized green energy networks for the Niseko Station Area as the first step to carry out the climate change strategies. Other measures involve creating a green heat certificate system to sell "green heat certificates," which allows for the monetization of renewable energy. Beyond energy, the local government planned to operate demand-responsive buses, which can contribute to CO2 emissions reduction but also serve as infrastructure to support the town's aging population. In addition, the plan emphasized cooperation with neighboring Kutchan Town and Rankoshi Town to put climate change strategies into practice as the whole Niseko Area (ニセコ町, 2011).

After the declaration of a climate emergency in 2020, the Niseko Town Climate Change Adaptation Policy was formulated in 2021, in which three basic adaptive strategies have been clarified: the first one is the collection of information based on scientific evidence. According to ニセコ町 (2021), cooperation between the central government, the government of Hokkaido, and research institutes to collect the related information is necessary. The second strategy is related to adaptation initiatives that should be based on local circumstances, which require adaptation to future influences from climate change within agriculture, economic sectors, natural environments, natural disasters, as well as the health and life of residents. The third one pertains to information sharing to promote the understanding and actions of residents and business operators regarding climate change (ニセコ町, 2021).

In 2024, Niseko Town published the "Niseko Town Decarbonization Action Plan" with the aims to achieve a decarbonized society. In this plan, the establishment of goals for energy efficiency in buildings, the introduction and effective utilization of renewable energy, and various energy-saving measures that align with Niseko Town's regional characteristics and contribute to solving local issues have been specified. The period for this plan is 2024-2033. Table 8-2 shows the six specific action areas with leading ideas.

Table 8-2 Specific action areas in "Niseko Town Decarbonization Action Plan"

Policy Field	Specific Action Area	Leading Ideas
Buildings	Public Facilities, Buildings (Residential and Non-Residential)	Making all buildings including public facilities, residential buildings and nonresidential buildings sustainable
Movement & Transport	Compact districts, Shared Use and Decarbonization	Forming compact district, promoting the shared use of transportation as well as the use of low-carbon transport
Business Activities	Tourism, Agriculture & Forestry, Construction, Retail, Manufacturing etc.	Promoting the efficiency of business and energy. Promoting high profitability through branding and improving management in forestry

Energy	Renewable energy, Information, Water & Sewage, Infrastructure	● Regulation support: clarifying rules for renewable energy projects, establishing local rules to support town/businesses-funded projects ● Information provision framework: establishing a system for information provision by energy suppliers and large-scale energy consumers ● Installation and practice: put into practice the energy saving for pumps, create entities to operate low-carbon, high-efficiency energy infrastructure, promoting local heat supply in high energy consumption density
Human Resource Development	Business Operators, Residents & Children	Promoting the improvement of necessary knowledge for different industries as well as daily life
Renewable Energy via External Operators	Negotiations with operators	Continue negotiations with large-scale renewable energy power general operators

Source: adapted from 二セコ町 (2024b)

Specific actions related to these six policy fields were also elaborated in this decarbonization plan, corresponding to each leading idea. With respect to buildings, energy saving initiatives should be implemented in newly constructed town-owned housing, public facilities and renovated town-owed housing. The utilization of high efficiency appliances is promoted as well. Besides, energy management systems will be implemented in public facilities. In addition, the establishment of regulations as well as subsidy systems is carried out for all kinds of buildings. Meeting the "Niseko Standard," which is the standard for improving energy saving, will be promoted. For existing residences, the energy saving renovation will be promoted and the energy saving labeling system will be applied. For new residences, energy-saving appliances will be promoted (二セコ町, 2024b).

Regarding mobility and transportation, compact districts will be planned, and services such as demand-responsive buses and shared cars will be promoted. Besides, EV-sharing cars were also planned to be increased. There are also some actions regarding bicycles including the formulation of

regulations about the promotion of utilization of bicycles and the promotion of utilization of bicycles. Besides, electrification is one of the actions not only for buses operated by Niseko bus company but also for cars, including official vehicles and company cars (ニセコ町, 2024b).

Regarding business activities, actions related to tourism have been underlined. According to ニセコ町 (2024b), 46% of CO2 emissions were from “other sectors”, with a significant portion deriving from large-scale accommodation facilities. To promote emission reduction, the mayor of the town planned to enter into an agreement with the business operators, and based on this agreement, the operators will submit the sustainability improvement five-year plan and the report about the utilization of energy to the mayor. In contrast, support such as promotion, prize-giving, and subsidies will be offered. The evaluation will be held each year, and in the case that few operators enter into the agreement, the local government will consider changing the agreement into a duty to fill for the businesses exceeding a certain scale. Besides, the subsidy to support green accommodations with the introduction of an accommodation tax will also be discussed. Other actions related to tourism include the renovation of hotel buildings for energy saving, the electrification of hotels’ shuttle buses, as well as the promotion of charging infrastructure development. The promotion of decarbonization has also been emphasized in agriculture, including the promotion of sustainable agriculture with the reduction of the utilization of chemical fertilizers. As to forestry, emphasis has been placed on promoting CO2 absorption by forests. At the same time, the electrification of cars used for agriculture, forestry, snow removal, and construction has also been discussed. In addition, decarbonization in retail and manufacturing has also been talked about (ニセコ町, 2024b).

Concerning energy, future actions include information sharing about the regulation about promotion of renewable energy introduction and support for entities financed by residents. Other actions related to renewable energy are maximizing the installation of solar power systems across public facilities, commercial buildings, as well as residences. Moreover, the energy suppliers should provide information about different types of energy as well as the amount of consumption. Besides, improving the efficiency of electric pumps utilized in well-water extraction, hot spring pumping, and

water and sewage services has also been considered. Another major action is related to local heat supply, including the realization of geothermal heat supply, heat and power supply for public facilities in the area surrounding the new town hall, as well as in the area surrounding the hot spring of Kira (綺羅乃湯). The power will be provided by the cogeneration system composed of a microgrid set for local heat supply, solar power mentioned above, and LP gas. For efficient power supply, the construction of a local energy company will also be discussed (ニセコ町, 2024b).

With regard to human resources development, actions include the organization of seminars related to the environment and energy. The town aims to mandate participation for local businesses with the goal that by 2030, every business in Niseko Town will have at least one staff member who has knowledge about saving energy. To engage children, environmental and energy workshops will be conducted to raise awareness about measures for energy and decarbonization. Additionally, water conservation seminars will be organized for residents. Furthermore, cooperation with external operators for renewable energy has also been discussed in the plan, primarily for hydropower and geothermal power generation. Besides, to realize the net-zero emissions goal by 2050, buying CO2 emission credits has also been considered in the case that CO2 emission reductions are projected to remain insufficient in 2033 (ニセコ町, 2024b).

In addition to the decarbonization action plan, the “Climate Change Measure Promotion Ordinance” was enacted in 2024 and came into effect in 2025. This ordinance identifies the responsibilities of various stakeholders, including the local government, residents, and business operators. For local government, it assumes the responsibility of formulating and implementing climate change measures. It should take the lead in implementing actions to mitigate and adapt to climate change based on regional characteristics. In addition, it should also promote climate change measures in other domains such as business, natural disasters, and health. The local government should also engage in public relation activities to increase the awareness of business operators and residents regarding the importance of climate change adaptation. For business operators, they should deepen their understanding of climate change and make efforts to voluntarily and proactively implement

measures for climate change mitigation and adaptation in their business activities. At the same time, they should cooperate with climate change measures implemented by the town. For local residents, they should deepen their understanding of climate change and make efforts to voluntarily and proactively implement measures for climate change mitigation and adaptation in their daily lives and cooperate with climate change measures implemented by the town. For visitors, they should cooperate with climate change measures implemented by the town (ニセコ町, 2024a).

Regarding key sectors, building construction, energy, and transportation were paid attention to. For building construction, the owner of the building should evaluate energy efficiency as well as other environmental considerations and should consider measures to reduce the environmental burden brought by the building. The building owner should also consider the introduction of appliances using renewable energy. People who sell equipment that contributes to the prevention of heat loss or the efficient use of energy and other business operators who can cooperate in this consideration should provide the building owner with information. About transportation, the owner and drivers of cars were the key groups. The car utilizers should make efforts to use cars efficiently or use public transport. They were also required to practice car maintenance to reduce CO2 emissions. At the same time, efforts to choose cars with low CO2 emissions when people buy cars were also demanded. Regarding energy, the mayor can ask the energy providers to provide information about the energy provided. The mayor can also ask people who own buildings used for business purposes in the town to provide information regarding energy consumption within the town (ニセコ町, 2024a).

Kutchan Town

Kutchan Town is the only town that has not made the “zero carbon city declaration,” in which the city aims to realize net-zero CO2 emissions by 2050 (北海道経済部ＧＸ推進局ＧＸ推進課地域脱炭素係, 2026). However, the town has published the “Kutchan Town Global Warming Countermeasures Action Plan” (Action Plan) in 2023 and “Kutchan Town Zero-Carbon Strategy” (the “Zero-Carbon Strategy”) in 2025. An evolution of actions can be identified when comparing the

specific actions mentioned in these two documents. Table 8-3 shows the key action areas as well as specific corresponding actions.

Table 8-3 Actions to mitigate climate change in Action Plan

Key Action Areas	Specific Actions
Changing the way of using existing facilities	● Utilizing the equipment in an energy-efficient way ● Light Business Attire in summer and winter to save energy ● Utilizing goods with refill packs or recyclable goods ● Paperless practices
Replacing facilities with energy-saving types	● Replacing air-conditioning with energy-saving types ● Utilizing LED in public facilities
Introduction of renewable energy	● Making efforts to introduce renewable energy into public facilities ● Utilizing electric vehicles for business cars
Waste reduction and recycling	● Promoting the “reduction” and “reutilization” with the help of various media ● Cooperating with private companies to develop the reuse of waste and raising awareness of utilization before waste disposal
Daily endeavors initiated by government staff	● Switching off the electrical appliances when not in use ● Maintaining appropriate temperature settings when using air conditioning ● Utilizing public transport as far as possible and utilizing eco driving mode when using cars for business

Source: author, adapted from 倶知安町 (2023)

Compared with the actions specified in “Action Plan”, “Zero-Carbon Strategy” adopted a wider scope and, in addition to the actions to reduce CO2 emissions, this document also incorporated aims such as “Conserving abundant nature and biological diversity”, “Ensuring a healthy and safe living” and “Fostering people who can take action to protect the environment” into the plan. For each aim, the actions initiated by different actors were also specified. Table 8-4 shows the specific action areas and specific actions initiated by different actors, including residents, business operators, and local governments. The actions listed here are under the goal of “utilizing energy efficiently to achieve zero-carbon” and “fostering people who can take action to protect the environment”.

In the “Zero-Carbon Strategy”, adaptive strategies to climate change were also emphasized. The adaptation mainly refers to adaptation of health and agriculture in the face of high temperatures, disaster management in the face of increasing extreme weather, and biological adaptation in the face of the influence of climate change on biology. The only adaptation related to tourism, which aligns with the research topic of this study, is that the adaptation in tourism in the face of reduced snow depth. The adaptive strategy is transitioning the destination from a winter destination to a year-round destination, promoting green tourism and tourism characterized by cultural experiences. An application of snowmaking was also proposed when snowfall is lacking.

Table 8-4 Goals and actions by different actors in zero-carbon strategy

Basic goal: utilizing energy efficiently to achieve zero-carbon				
Action Area	Specific Actions	Residents	Business Operators	Local Government
Promotion of mobility of next generation	Promotion of mobility of next generation	Transitioning private vehicles to next-generation models	Transitioning business vehicles and vehicles for logistics to next-generation models	●Transitioning municipal vehicles to next-general models ●Introduction of national government subsidies ●Research and study regarding energy supply facilities
Transitioning to a decarbonized lifestyle	Promoting the activities of saving energy	●Lowing the temperature of heating ●Turning off the lights in unnecessary cases ●Cutting off the amount of water use ●Driving in an eco-mode ●Reducing the amount of loss, doing property		
	Introduction of energy-saving appliances and appliances using renewable energy, promoting energy-saving buildings	●Replacement of appliances with energy-saving type, utilizing LED lighting for business operators ●Constructing and renovating buildings for a saving energy type (high insulation) ●Considering renewable energy when construction and renovation		●Transitioning public facilities into energy-saving types ●Introduction of national government subsidies ●Considering the systems for supporting the introduction of saving energy appliances and saving energy buildings ●Collecting information about renewable energy in heavy snowfall areas
Fostering future-shapers through environmental education		●Participating in the workshops addressing young generation and families ●Joining to the cleaning up events ●Participating in biological and water quality surveys by volunteers	●Being sponsors for educational events ●Participating in biological and water quality surveys by volunteers	●Cultivating local leaders through workshops, and school and community events ●Developing human resources through educational outreach ●Implementing workshops for families and clean up events ●Disclosing information about nature and application in education ●Strengthening the preservation of historic buildings and landscapes, and local history studies ●Implementing biodiversity and water quality surveys

Source: Author, adapted from 倶知安町 (2025)

Rankoshi Town

Rankoshi Town has published the “Rankoshi Town Climate Change Mitigation Plan” in 2024, in which several actions were underlined to mitigate climate change. Similar to parts of the mitigation actions taken by Niseko Town and Kutchan Town, Rankoshi Town paid attention to the reduction of electricity consumption and the use of fossil fuels, which are causes of climate change. Specifically, the following action areas were emphasized, as shown in Table 8-5. Besides, Rankoshi Town has also made the “Zero Carbon City Declaration” in 2025 to achieve net-zero emissions by 2050.

Table 8-5 Climate change mitigation actions initiated by Rankoshi Town

Action Area	Specific Actions
Reducing Electricity Consumption	● Lighting-related initiatives such as turning off unnecessary lights, adopting LED lighting, etc. ● Office equipment and supplies related initiatives such as switching off unnecessary equipment or setting to energy-saving mode, etc.
Reducing the use of fossil fuels	● Initiatives to reduce heavy oil and kerosene use such as minimizing the operation of heating systems ● Initiatives to reduce fossil fuel use such as using cars efficiently, introduction of EV vehicles etc. ● Initiatives to reduce office goods and do recycling such as utilizing double-side printing and promoting paperless, etc. ● Initiatives to reduce waste and increase recycling, such as using recycled paper for copy machines and strictly implementing waste sorting protocols
Reducing the use of water	● Strictly implementing water-saving initiatives and checking for water leaks regularly
Purchasing eco-friendly products	● Purchasing products made from recycled material, goods with refill packs, recyclable goods, and goods with eco mark.
Environmental consideration in public facilities	● Introducing renewable energy such as solar power generation when constructing new buildings or renovating. ● Introducing energy-saving appliances ● Transitioning existing electricity contracts to electricity generated from renewable energy

CO2 absorption	● Managing forest resources to ensure the CO2 absorption ability ● Implementing maintenance of green spaces
Promoting staff awareness	● Encouraging actions to save energy and reduce waste such as implementing seasonal energy-saving dress codes, using public transport, using “my bottles and my chopsticks” ● Taking the leadership role in taking climate change mitigation actions to inspire residents and communicating the results of these actions to the public

Source: Author, adapted from 蘭越町 (2024)

Furthermore, it should be noted that although the Niseko Area, comprising Niseko Town, Kutchan Town and Rankoshi Town, is widely recognized as “Niseko” from the view of agricultural products and destination (ニセコ町, 2011), there is no unified public authority whose jurisdiction covers all three towns. Consequently, official documents regarding climate change measures for the Niseko Area as a whole do not exist.

8.2 Findings of Content Analysis: Newspapers

By searching the four online newspaper databases using the keywords described in subsection 5.2.2 and manually screening the results, a total of forty relevant newspaper articles were identified. As shown in Figure 8-1, the results indicate that while Hokkaido Shimbun published the highest number of articles related to climate change and the Niseko area, no relevant articles were found in Yomiuri Shimbun. The significant differences can be explained by the fact that Hokkaido Shimbun covers all regions within Hokkaido, thereby reflecting a stronger commitment to local issues and regionality.

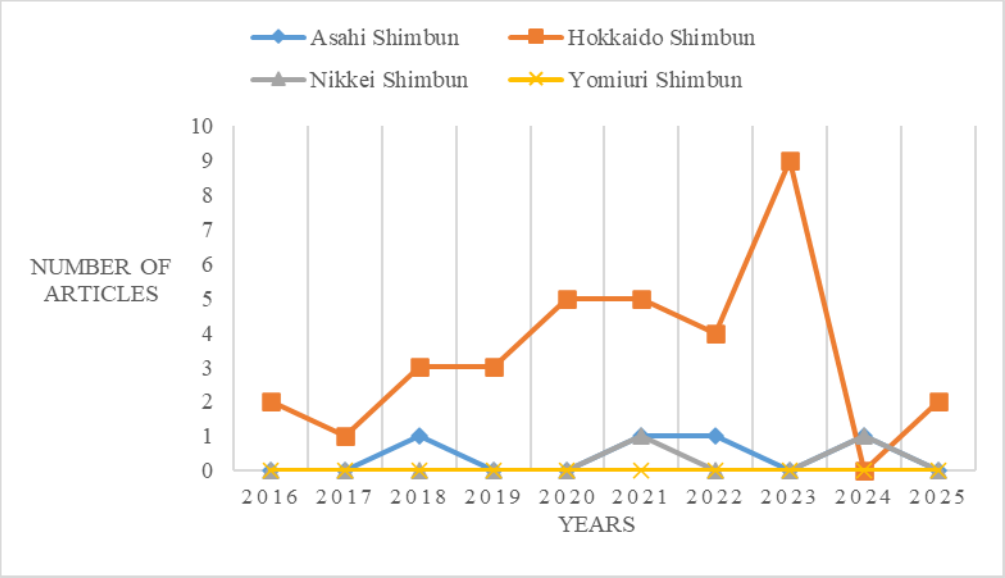


Figure 8-1 Annual frequency of relevant articles in four newspapers, 2016-2025

Source: Author

When viewed as an integrated entity, climate change has already affected the Niseko area, and the impacts are projected to continue in the future based on the results. The data suggests that 2020 marked a turning point concerning the influence of climate change on the Niseko Area. In 2016, selected by an English ski magazine as one of the 100 best ski resorts in the world, Niseko area possessed advantages and attracted more and more European skiers in the context that European ski resorts had experienced a shortage of snowfall. During the same year, foreign investors remained optimistic about the development of real estate in the Niseko area as long as powder snow continued to fall. However, in 2020, the Niseko area experienced a snow shortage, and some ski resorts had to end the season prematurely due to the poor snow conditions. The Japan Meteorological Agency (JMA) of the Sapporo Region proved a decline in average snowfall between 2011 and 2020, compared with 1991-2000 (9.3 meters vs 11.8 meters). In addition, projections indicate a reduction of powder snow days to less than one-third of current levels by the end of this 21st century. This can result in a series of changes for ski resorts: the optimal elevation for powder snow will therefore rise in the future and will be situated at the summit and on the mid-mountain slopes. High temperatures can also bring disadvantages to the ski slopes, which will require more careful grooming operations. In the same

year, real estate agents stated the discussion on the necessity of diversifying management resources into other regions. In 2021, the JMA of the Sapporo Region stated that climate change can change the powder snow quality, while in 2022, it previewed again that if the GHG emissions continue at the current level, the average temperature in the Shiribeshi region will increase by 5 degrees by 2100, leading to a 40% decrease in snow depth and a transition in snow quality toward “corn snow”.

Existing impacts and future influence from climate change have also been noted by researchers as well as local residents. A few farmers have observed certain positive agricultural outcomes such as the improvement of rice quality and the increasing suitability of the territory for viticulture. However, researchers have adopted adaptive strategies to prevent the negative impacts of climate change, such as the development of a system for visualizing avalanches as well as a system to prevent the damage caused by snowfall in Niseko Town.

Table 8-6 - Table 8-8 indicates the actors and actions mentioned in newspapers by town. There are two points to be explained. First, the number in brackets indicates the number of articles. Besides, for some actions implemented jointly by different actors, the same action will appear twice or more for each actor. Regarding actions to fight against climate change, the data indicates that all three towns have implemented actions to mitigate climate change, contributing to a collective regional effort across the Niseko area. However, some commonalities and differences appear significant with regard to specific actions and actors. Both Niseko Town and Kutchan Town underlined “reducing CO2 emissions” as the core actions to mitigate climate change. However, in Niseko Town, the local government serves as the primary actor and has also adopted a more proactive stance. This is evidenced by its formal declaration of a climate emergency and its commitment to achieve net-zero emissions by 2050. In Kutchan Town, data show that the Kutchan Tourism Association as well as the Shiribeshi General Bureau were the main actors. Concerning the specific actions, a distinct contrast is also evident.

With regard to specific actions, while in Niseko Town, the local government paid attention to actions related to energy such as improving energy efficiency (utilizing cogeneration system for both

electricity and heating, developing airtight, well-insulated residences by cooperating a local private-public company), utilizing renewable energy (utilization of geothermal spring heat), accompanied by the action of promoting recycling executing rubbish recycling strategy by constructing food waste compositing facility. As to Kutchan Town, the focus is on selling CO2 emissions credits to local businesses for reducing CO2 emissions through the "Forest Absorption Project Council" set up by the two public authorities mentioned above, as well as the local government of Kutchan Town. The revenue derived therefrom is planned to be used to upgrade eco-friendly projects, including eco-friendly transportation and trial maintenance. Additional measures include replacing older trees with younger trees which have a higher capacity for absorbing CO2, initiated by the Shiribeshi General Bureau. Similar action has also been launched by the local government of Niseko Town, which is calculating the amount of carbon sequestered by local forests and cooperating with the forestry industry. Besides, the Kutchan Tourism Association held an activity of selling flowers made from vegetables grown in Kutchan Town and Niseko Town as an initiative to reduce transport-related CO2 emissions. As to Rankoshi Town, the action taken by the local government is establishing a partnership with a consulting firm in Tokyo specializing in urban planning and environmental studies to achieve the net-zero CO2 emission goal by 2050. The firm will provide support, including sending employees with expertise to conduct environmental educational workshops and regularly having online meetings with the local government.

Actions taken by resorts and the shift in future development strategies taken by investors and real estate agents can also be viewed from the perspective of the Niseko area as a whole. For the former, resorts in Kutchan Town and Niseko Town have taken energy-related actions such as utilizing electricity generated from renewable energy and utilizing LED lighting to save energy. These actions were driven by a growing consensus that urgent actions are required to preserve powder snow in the Niseko area and a desire to attract environmentally conscious international skiers. One ski resort in Kutchan town has joined the "Sustainable Resort Alliance", initiated by an external general incorporated association, to support eco-conscious ski resorts and promote their use among skiers. For

investors and real estate, they planned to explore alternative business models, recognizing that the current model's heavy reliance on powder snow may no longer be viable due to the impacts of climate change. As new strategies, they targeted various client bases such as wealthy retirees and business clients and planned to transform Niseko into an attractive year-round resort suitable for long-term stays, which requires an integration of the tourism resources of the entire Shiribeshi region to make Niseko an attractive place for summer refuge.

Another common action taken within the three towns is that for raising public awareness about climate change. However, the actors who organized the events are different. While in Niseko Town, it is the internal volunteer groups (volunteers and citizen groups from Niseko Town) who appealed to the local government to use less fossil fuel and raise the awareness of residents and skiers about climate change, the actors who initiated similar activities were "external" in Kutchan Town and Rankoshi Town, such as the general incorporated association mentioned above and environmental activists. In addition, the only two public authority-led events were an outreach lecture (Demae Kouza) organized by the Shiribeshi General Bureau in Niseko Town and another event initiated by the Kutchan Consumer Association where government staff lectured on reducing chemical fertilizers and pesticides to prevent climate change and environmental degradation in Kutchan Town.

Table 8-6 Actors and actions mentioned in articles related to Niseko Town

Actors	Actions
Local Government (7)	● Being proactive in policies fighting against climate change ● Putting into practice actions to promote energy efficiency and utilizing renewable energy to reduce CO2 emissions
Local Enterprises (4)	● Reducing CO2 emissions by promoting energy efficiency and utilizing renewable energy
Researcher (3)	● Previewing that the snowfall period as well as the quality of powder snow will be impacted by climate change ● Investigating the relation between weather and powder snow satisfaction, developed the system to prevent snow disaster.
Volunteer (3)	● Calling for the local government to stop using fossil fuels ● Raising awareness of residents and skiers about climate change
Shiribeshi General Bureau (1)	● Giving a public outreach lecture (Demae Kouza) to the 1st year students of college for the realization of net-zero GHG emissions in Hokkaido by 2050
Investors and Resort Operators (1)	● Replacing current business model which relies on powder snow by other models which target various client base and transforms Niseko into year-round destination due to climate change's impacts.
Viticulturist (1)	● Expressing positive attitude toward climate change as the cultivation of red wine grapes becomes possible as climate changes

Source: Author

Table 8-7 Actors and actions mentioned in articles related to Kutchan Town

Actors	Actions
Ktuchan Tourism Association (3)	● Creating "Forest Absorption Project Council" with Shiribeshi General Bureau and Kutchan Local Government to sell CO2 emission credits to enterprises to reduce CO2 emissions ● Selling locally produced vegetables and flowers to reduce transport-related CO2 emissions
Shiribeshi General Bureau (3)	● Creating "Forest Absorption Project Council" with Kutchan Tourism Association and Kutchan Local Government to sell CO2 emission credits to enterprises to reduce CO2 emissions. ● Replacing older trees with younger trees to increase the CO2 absorptive capability of the forest
Investors and Resort Operators	● Replacing the current business model, which relies on powder snow by other models that target various client bases and transform Niseko into a

(2)	year-round destination due to climate change's impacts.
General Incorporated Association (2)	● Organizing events to increase awareness of climate change ● Creating "Sustainable Resort Alliance" to support eco-conscious ski resorts and promote their use among skiers
Ski Resorts (1)	● Utilizing renewable energy and making efforts to save energy to reduce CO2 emissions
Local Government (1)	● Creating a "Forest Absorption Project Council" with Shiribeshi General Bureau and Kutchan Tourism Association to sell CO2 emission credits to enterprises to reduce CO2 emissions
Local Resident (1)	● Talking about his perspectives on the impacts of climate change on powder snow quality
Kutchan Town (1)	● In 2020, the snow depth was firstly less than 1 meter since 1961. And the Japan Meteorological Agency (JMA) of the Sapporo Region predicted the elevation of temperature and a reduction of ice days in Kutchan Town by the end of the century.
Kutchan Consumer Association (1)	● Organizing events to increase awareness about the impacts of using chemical fertilizers and pesticides on climate change

Source: Author

Table 8-8 Actors and Actions Mentioned in Articles related to Rankoshi Town

Actors	Actions
Farmer (1)	● Stating that the quality of rice becomes better because of the high temperature resulting from climate change
Environmental Activist (1)	● Lecturing on the cause and current state of climate change, as well as the actions the residents can take
Local Government (1)	● Signing a partnership agreement with a consulting firm in Tokyo to achieve net-zero CO2 emissions by 2050

Source: Author

Through a content analysis of both official documents and newspaper articles, distinct variations emerge regarding how each town intensifies and prioritizes its climate actions. Consequently, the next section delivers a synthesized discussion based on these empirical findings.

8.3 Findings of Content Analysis: A Synthesized Discussion

Based on the analysis of official documents as well as newspapers during a decade, several conclusions can be drawn. First, based on the newspapers, it can be concluded that the Niseko Area

has already been affected by climate change, and these impacts are projected to continue in the future under the current emission scenarios. This evidence provides a strong justification for this study and reinforces its practical relevance.

Regarding climate change mitigation actions, actions have been put into effect to reduce CO2 emissions throughout the whole Niseko area, with a primary focus on energy from the perspective of local governments. These initiatives include promoting energy efficiency, implementing energy-saving actions, and introducing renewable energy to reduce the dependency on fossil fuels. However, there are noticeable variations in the relevant strategies adopted by the three towns. Both the number of official documents and newspapers show that Niseko Town focuses more on climate change mitigation. Also, the local government in Niseko Town emerged as a key actor in comparison to other towns. The data indicates a continuous expansion of policies and planned actions, as evidenced by different official documents. These records encompass a diverse range of stakeholders, including local governments, business operators, and residents, and address multiple sectors, such as buildings and public transport. Although in the latest official document published by the Kutchan Town different actors have also been considered, the policies and actions planned by the Niseko Town remain significantly more detailed and multi-level. Regarding Rankoshi Town, mitigation actions were not categorized by actors in official documents, and no relevant information was found in the analyzed newspaper content.

Furthermore, specific actions and policies exhibit distinct characteristics across the various towns. As mentioned above, policies and actions planned by Niseko are more comprehensive, with a significant portion directed at the macro-level. These include the implementation of energy-saving actions in all buildings in the town and demand-responsive buses. Regulations and systems will also be completed to support the mitigation actions, such as subsidy systems for high-insulation residential renovations. In contrast, some actions planned by Kutchan Town and Rankoshi Town were at a micro level, emphasizing a transition toward sustainable lifestyles. Some actions related to behavioral shifts were prioritized, such as switching off lights when not using, lowering the temperature of air

conditioning. Besides, the zero-carbon strategies initiated by Kutchan Town are not only limited to reducing CO2 emissions but encompass broader sustainability objectives, such as biodiversity conservation and public health, although the content was omitted here. Notably, this emphasis on behavioral changes is absent from Niseko Town's action plans.

Similar trends are evident in initiatives aimed at raising public awareness. While both Niseko Town and Kutchan Town planned to hold events to raise public awareness concerning climate change, their strategies differ. In Niseko Town, the local government sought to visualize its efforts to mitigate climate change by introducing advanced technologies into public facilities to facilitate the use of renewable energies. Regarding Kutchan Town, the local public adopted a broader sustainability scope and organized the cleaning up activities and the preservation of historical buildings that go beyond only CO2 emission reductions. Concerning Rankoshi Town, the local government planned to take leadership in executing energy-saving and waste reduction actions and communicate their effectiveness to the public. However, based on the contents of newspapers, no awareness-raising events were directly organized by local governments. Apart from a lecture given by the Shiribeshi General Bureau, the Kutchan Consumer Association, the majority of activities were organized by local volunteers involving citizen groups, staff working in schools and others (Niseko Town), external general incorporated association (Kutchan Town) and external environmental activist (Rankoshi Town). However, possible bias may exist between official initiatives in practice and their media representation.

Given the focus of this study, tourism and destination-related initiatives will be paid attention to. Among the three towns, only Niseko Town underlined climate change mitigation actions within the tourism sector, addressing both operational and policy dimensions. In the operational dimensions, planned actions include the introduction of renewable energy, renovation of buildings for energy saving, and the deployment of EV shuttle buses. In the policy dimension, the local government has proposed a ranking system to incentivize climate action among tourism operators, alongside a promotion council to facilitate information sharing. Furthermore, the local government was preparing

an agreement between the mayor and local businesses, which may eventually become a mandatory requirement for large-scale enterprises. Besides, the introduction of an accommodation tax will be discussed. Niseko Town also clarified the duty of visitors to cooperate with the implemented climate change mitigation policies, although specific action plans remain undefined. In contrast, Kutchan Town's strategy is limited to the transition to a year-round destination as an adaptive strategy to climate change, while in Rankoshi Town, there are no relevant actions in either official records or newspaper content. Besides, as mentioned above, resorts in Niseko Town and Kutchan Town have initiated renewable energy and energy-saving actions.

Official document analysis reveals that climate change mitigation remains the predominant focus across the Niseko Area. Apart from adaptive actions in the tourism sector previously discussed, Kutchan Town is the only town to specify adaptive strategies across diverse sectors, including adaptation in agriculture, health, biology, and disaster management, except for the tourism sector's adaptive actions mentioned above. Furthermore, data from newspaper content indicates that investors in the Niseko area have started to discuss adaptive strategies, including diversifying the client base and transitioning the destination toward a year-round type. These initiatives aim to reduce the dependency on powder snow, which can be impacted by climate change. Additionally, some investors have emphasized the diversification of resources into other regions as an adaptive response.

Finally, based on an analysis of official documents and newspaper content, collaborative actions among these three towns to address climate change appear to be non-existent, despite the necessity highlighted by the Niseko Town. Besides, no empirical evidence was found regarding the Niseko Promotion Board's involvement in such initiatives. This lack of information suggests that the area's DMO has not initiated significant actions to address climate change issues. All the analysis will be further discussed, combined with the analysis of findings from interviews in Chapter 9.

Chapter 9 Discussion

This chapter will discuss organizational resilience of the NPB and destination resilience from the perspectives of multiple stakeholders. Specifically, section 9.1 is at the internal organizational level and evaluates organizational resilience by exploring its determinants and barriers. Section 9.2 is positioned at meso-level, which addresses the roles of the NPB in destination resilience. In addition, governments' roles perceived by the NPB are also explored. Section 9.3 explores climate change impact and vulnerability perceived by ten interviewees, as well as their perceptions of adaptation taken by various groups of stakeholders. An integrated framework for interactions between multiple stakeholders contributing to destination resilience will be presented at the end of the section.

9.1 Evaluation of Organizational Resilience of NPB

9.1.1 The Influence of Functional Boundaries on Organizational Resilience

Based on the findings in Chapter 6, it can be concluded that the organizational resilience of NPB remains constrained by its core functions. This became apparent as all three interviewees underlined multiple times "marketing and destination promotion" as its core function, particularly when discussing some actions taken by NPB in response to climate change. This core function was also stated as a reason for their negative attitudes toward certain roles that DMOs might assume in addressing climate change, since these roles were perceived as lying outside NPB's remit.

This finding aligns with the argument of Pike & Page (2014) that the degree to which DMOs can assume this responsibility depends on the precise legislative or political framework. Similarly, Serra et al. (2017) suggested DMOs can hardly fulfill broader responsibilities because they lack the authority and control over the destination as well as tourist services and products. Previous studies have proposed that DMOs' roles need to go beyond marketing (Bhandari et al., 2015) as the operating and external environments of DMOs are changing (Singh, 2014). Under a crisis scenario, such as the COVID-19 pandemic, DMOs have been considered to take a leadership role in consideration of their

cooperation with other actors and further influence destination crisis culture in the long term (Kuščer et al., 2022). Nevertheless, the case of NPB indicates that the lack of legislative authority can also pose challenges to organizational resilience in responding to climate change.

On the other hand, as noted in Section 4.2.1, organizational resilience for DMOs is rather about how to adapt (Boin et al., 2010) than organization survival (Adam et al., 2007; Lewis, 2002) in the context of crises. This argument finds empirical support in findings that a large proportion of adaptive actions adopted by NPB to cope with climate change are embedded in "marketing and destination promotion" function. Concrete actions include promoting green season and another way of enjoying Niseko to attract off-peak visitors in March, developing new destination branding strategies that highlight the value of Niseko's natural environment, and conducting marketing activities for products designed to raise climate change awareness. Given the overreliance on winter by the Niseko area, as stressed by interviewees, promoting the green season can be understood as an all-year round operation adaptation (C. Morrison & Pickering, 2013) aiming to alleviate the impacts brought by the seasonality and reliability of natural snow. Moreover, Steiger et al. (2024) argue that some destinations may require future rebranding to support a transition to year-round tourism, which corresponds to NPB's efforts in reframing the brand. Furthermore, MacEachern et al. (2024) justify marketing, which can enhance a sustainable image of the destination, serve as an effective tool for DMOs to respond to climate change. These perspectives suggest that NPB's efforts related to its marketing and destination promotion functions can serve as an effective form for climate change adaptation. In addition, according to the interviewees, several local events have been initiated by the NPB or other tourism organizations in which NPB plays a cooperative role. Events or campaigns, such as plastic-free food festivals, tree planting activities, initiatives addressing waste management issues, and efforts encouraging people to respect the natural environment while enjoying Niseko, aim to raise awareness among visitors about sustainability and then may stimulate their demand for sustainable initiatives (Dodds, 2010). Although interviewees underlined that these initiatives were at a destination level, Weaver (2011) justifies the effectiveness of these local actions:

> …such localized efforts may indeed have a tangible effect on global climate change and attract less scepticism and cynicism in so doing. Participatory exposure of residents and tourists to these kinds of local level initiatives is more likely than sensationalist exposure to the grand and quixotic narratives of climate change and carbon neutrality to incrementally carry society, and thus industry, beyond superficial environmentalism. (p.13)

9.1.2 Identified Barriers for Organizational Resilience of NPB to Climate Change

Identified Barriers to NPB's organizational resilience regarding climate change are categorized into two types. The first type refers to the natural environment and utilization of resources in Niseko. Specifically, while one interviewee highlighted the lack of environmental stewardship, which means insufficient protection of the natural environment, another interviewee noted the uncertainty regarding whether the development of non-winter activities can progress quickly enough to match the pace of NPB's promotion. These findings provide a novel insight into the elements impacting organizational resilience. Based on the concept of DMO organizational resilience, barriers to NPB organizational resilience to climate change can be translated into "which factor hinders NPB's adaptation to climate change". In contrast to people, processes, and partnerships, which are structures "inside" organizational influencing organizational resilience determined by Hall et al. (2018b), external factors are more highlighted in the case of NPB in the face of climate change, which can be justified from two perspectives. From the perspective of DMO's roles and its operation, one of DMO's main functions is marketing and promotion, stressed by Wang (2011b) and Dore & Crouch (2003). Mihalič (2000) further emphasizes the role of DMO in carrying out environmental marketing and then contributing to enhancing destination competitiveness. This role can be negatively impacted by environmental degradation (Mihalič, 2000). From the perspective of destination resilience, Amore et al. (2018) propose that changes in ecological systems can also threaten sustainability and resilience strategies at destination level, including organizational resilience. Besides, the uncertainty shown in the development of non-winter activities mentioned by the interviewee corresponds to challenges proposed Kaján & Saarinen (2013): adaptation strategy might be constrained by limited available resources, lack of originality and attractiveness of new activities.

Another type of barrier refers to limited control over destination development, including environmental stewardship mentioned above. This argument has been used to explain that organizational resilience of NPB can go beyond its core functions mentioned in the last section and is re-underlined here as two interviewees also identified it as the barrier for organizational resilience. This finding can be supported by Fyall (2011) who points out the inability of DMOs to control and influence the direction of a destination due to the fact that not all elements are managed by the same body.

Moreover, Biggs et al. (2012) identified financial capital, including access to additional finances, as another factor that can influence organizational resilience. One interviewee's response aligns with this perspective by noting that as a membership-based organization whose financial resources depend partly on membership fees, NPB should show the value to its members and therefore has limited capacity to address climate change issues.

9.2 Roles of the NPB in Enhancing Destination Resilience and Perceived Local Government Roles

9.2.1 Roles of the NPB in Enhancing Destination Resilience to Climate Change and Identified Barriers for Destination Resilience

From the perspective of the NPB, the roles of the NPB in enhancing destination resilience are reflective, supportive, and dynamic in the course of collaboration with other tourism actors. The NPB functions as a bridge connecting local authorities, tourism businesses, and residents as well as visitors. The supportive role has specifically been underlined by the interviewees when they explained that DMOs are not designed to take initiatives. According to the interviewees, NPB is expected to cooperate with and promote adaptive activities and projects to climate change launched by the town or other associations. As Interviewee B explained, "the strategy of the NPB is to stay dynamic to respond to the changing outlook of destination." These responsive roles suggest that the organizational resilience of NPB reflects a reactive approach to organizational resilience, which highlights the development of abilities by an organization to cope with ongoing environmental changes (Lengnick-

Hall et al., 2011), as opposed to the proactive gesture indicated in the framework of organizational resilience of DMOs by Scarpino & Gretzel (2014) in the pre-crisis phase.

Regarding the coordination roles of NPB, these have been identified by both official documents (Japan Tourism Agency, 2024b) as well as by interviewees. The NPB acts as a coordination platform associating various tourism stakeholders, including local authorities, tourism organizations, tourism businesses, as well as residents and visitors. Moreover, as the NPB adopts a membership system, the formal network has thus been formed. Besides, the interviewee also emphasized that the NPB could reach an international audience that is challenging for local government. Based on the destination resilience framework from multiple perspectives Amore et al. (2018), tourism business and DMOs are classified as tourism-specific actors, while local government is classified as regime actors. Both of them are at the regime level. Besides, residents and visitors are seen at the niche level. Hall et al. (2018c) suggested that destination resilience can appear across multiple levels and dimensions. From a holistic perspective, this indicates that understanding the interaction among actors, coordination, governance, risk management, and cooperation within and across various levels is essential for strengthening destination resilience (Amore et al., 2018).

The coordination role makes the NPB act as an intermediary to facilitate cross-level coordination and application of strategies related to sustainability and climate change. As Interviewee A mentioned, “most of the communication and feedback loop comes from guests, both domestic and international, coming to the area. And what we can do is encourage them to act respectfully for nature.” The communication channel that the NPB can mobilize helps the realization of strategies and collective goals of sustainability, which can be formed by the NPB and other regime actors.

Communication and implementation of strategies can also be realized at the level through the connections between the members of the NPB and the NPB. According to the interviewees, the NPB has a larger membership compared with other tourism organizations, and this direct contact with businesses is a huge advantage for facilitating the application of strategy because “you get everybody on board” (Interviewee A). Through this membership system, the NPB can encourage the local

businesses to adopt various strategies to cope with climate change. The standpoint of Amore et al. (2018) support this point. They pointed out that social relationships between actors in both formal and informal sectors help build social capital, which is related to networks, norms, beliefs that promote action and collaboration for joint benefits (Aldrich & Meyer, 2014). Such accumulated social capital can in turn contribute to the organizational resilience of the member businesses. By analogy, the interconnection between the NPB and other tourism organizations, as well as local authorities, also contributes to social capital building, and then the organizational resilience of the NPB. Furthermore, the interviewees perceive NPB's leadership role as primarily situated among local businesses rather than leadership for the whole destination resilience. This is because NPB is considered strong in shaping destination message and destination brand building, whereas its member businesses are seen as being more "tactical in marketing."

DMOs are generally expected to ensure coordination, promote communication and knowledge sharing, and actively establish the link among actors (Raich & Pechlaner, 2010). Their role as coordinators and connectors between the political authorities and local tourist sectors has also been emphasized in sustainable tourism research in other alpine destinations carried out by Wagenseil & Zemp (2016) and Wagenseil et al. (2024). With regard to communication, previous studies suggested communication between stakeholders constitutes a decisive driving force for implementing sustainability (Colebatch, 2020; Haid et al., 2021). Moreover, Blackman & Ritchie (2008) as well as Scarpino & Gretzel (2014) all highlight the crucial role of DMOs in communicating crises with local stakeholders. This role was also underlined in the case of the pandemic by Kuščer et al. (2022) and Månsson & Eksell (2024). Although climate change differs substantially from sudden crisis in terms of change rates (Lew, 2014), it can be deduced that communication can help to coordinate public and private actors and ensure consistency of message and support the implementation of climate-related and sustainability-related measures. This resonates with the practice observed in the case of NPB.

Regarding the barriers for destination resilience, Interviewee B highlighted the uncertainty related to the development of diverse products that can compensate for the reduced attractiveness of

snow-based activities due to climate change. This uncertainty requires the local government to be better prepared for future environmental changes. Furthermore, Interviewee A also emphasized that the adverse impacts of climate change have not yet become evident. This is consistent with Giddens (2009)' paradox about the invisibility of climate change: "since the dangers posed by global warming aren't tangible, immediate or visible in the course of day-to-day life, however awesome they appear, many will sit on their hands and do nothing of a concrete nature about them" (p.2). The long timelines of climate change resulting in a low business management priority have similarly been identified by Scott, Hall, et al. (2012b) as well. The invisibility and long timelines can therefore lead to the lack of adaptive plans, ultimately weakening destination resilience to climate change. In addition, Interviewee C pointed to a lack of awareness about climate change among local people. Evidence from the Swiss Alps illustrates that raising awareness of climate-related issues can help reduce the ecological vulnerability from a destination perspective (Confederazione Svizzera, 2011, as cited in Amore et al., 2018).

9.2.2 Roles of Government from the Perspectives of the NPB

Brooks et al. (2005) furthermore highlighted the importance of government in reducing climate change risk. Given this significant role of governments, it is typical that the roles of governments were mentioned by DMOs under the background of climate change. From the perspective of the NPB, governments at different scales assume various responsibilities. With respect to central governments, the interviewees expected the central government to provide stronger leadership in formulating tourism strategies and planning in terms of climate change. They advocated a top-down implementation approach, highlighting the limited power of local authorities and stakeholders. The necessity of the leadership of the national government was also emphasized by Dodds & Graci (2009), who state that limited actions occurred without national leadership on the issue of climate change in the case of the Canadian tourism sector. In addition, the regional level government (Shiribeshi) is expected to take initiatives to enhance cooperation among the local

governments within its jurisdiction. According to Luthe & Wyss (2014), long-term adaptation to subtle changes such as climate change necessitates a learning process and innovation, calling for the interaction of diverse actors. A regional hub of stakeholders has higher innovative capacity, allowing the whole system to cope with more complex and gradual aspects of climate change.

At a local level, the local governments are expected to establish a platform that facilitates communication and sharing of information and knowledge between the NPB, local governments, and other tourism organizations. The NPB is responsible for promoting strategies and gathering feedback from visitors, residents, and local businesses, owing to its direct access to these tourism stakeholders, as described in its mandate and by the interviewees. The provision of information to other stakeholders and more active communication can make a stronger plan to prepare for the future and then strengthen destination resilience. This is justified by Luthe & Wyss (2016) who contend that the resilience of tourism social-ecological systems depends on social learning and diversity when adapting to long-term changes such as climate change. And Bullock et al. (2022) clarify that social learning entails an integrated assembly of actors who collaborate to share knowledge and co-creation of experience based on a common understanding of challenges, here climate change.

From the view of the whole Niseko area, local governments are expected to take actions to prepare for incoming challenges. This involves preparing and proposing sustainable products adapted to less powder snow and environmental stewardship through land-use development controls. Environmental stewardship also encompasses tangible dimensions, such as enhancing infrastructure to facilitate garbage recycling for tourists, and intangible dimensions, such as raising public awareness of reducing plastic use and garbage recycling. It can be concluded that these initiatives go through from actions at the macro level to actions at the micro level, addressing not only climate change but also issues deriving from overtourism, according to the interviewees. In addition, these initiatives go beyond adaptation to climate change and also tackle sustainability issues. This result aligns partly with the analysis of content analysis: as mentioned above, Kutchan Town and Rankoshi Town have planned some initiatives aiming to transition behaviors to more sustainable ones, such as waste recycling and

turning off the lights. However, specific actions at a tangible level addressing visitors, such as improvement of infrastructure to facilitate waste recycling, have neither been mentioned in official documents nor in newspaper content. In addition, Niseko Town has planned some actions at the macro level for controlling development, such as permitting the building construction when it meets the energy-saving standard. However, environmental stewardship, including land use, is still expected.

Grounded in theoretical frameworks, DMOs take responsibility for providing key information to destination stakeholders (J. R. B. Ritchie & Crouch, 2003). In the context of climate change, Ockwell et al. (2009) argue that improving access to information and communication channels can strengthen adaptive capacity by enabling more thoughtful and committed climate action. Therefore, the initiatives that the NPB expected local governments to undertake can support adaptive capacity among these local authorities and organizations, which will contribute to the whole destination resilience, according to Amore et al. (2018). Moreover, the preparation for possible future changes by local governments can be justified from two perspectives. On the one hand, the local government assumes the responsibility of promoting social, economic, environmental and cultural welfare of their communities and their engagement in tourism must also be related to that (Javier & Elazigue, 2011). Ruhanen (2013) also suggests that local government is central to steer sustainable development initiatives at the destination level. On the other hand, the importance of coping with possible hazards to realize destination sustainability is stressed in the literature of Jopp et al. (2010) and Njoroge (2014). The local governments serve as strategic mediators and coordinators among actors at the regime level, environmental managers and sustainability promoters for the whole destination.

9.3 Evaluation of Destination Resilience of Niseko to Climate Change from Other Stakeholders' Perspective

In this section, the perspectives of ten stakeholders regarding the destination resilience of Niseko to climate change are examined based on the findings in Chapter 7. All these 10 interviewees are residents in the Niseko area. According to the destination resilience model from multiple stakeholders proposed by Amore et al. (2018), residents are positioned at the niche level. At the same

time, because their occupations are directly or indirectly involved in tourism, they may also be considered regime-level actors. The complexity of stakeholder categories enriches the subtle insights that a perception-based qualitative study can offer (Hopkins, 2014). Moreover, involvement in tourism also enables them to express views that are informed by tourism and destination perspectives.

The arguments of Amore et al. (2018) provides theoretical support for including the actors at both regime level and niche level for destination resilience building. At the regime level, resilience emerges when interconnections among organizational actors, institutional actors, and other subsystems are effectively coordinated and aligned. At the niche level, by adopting genuinely participatory planning methods, destinations can incorporate the views of the resident population in tourism development. This approach can also be applied to efforts aimed at strengthening destination resilience. Consequently, it is meaningful to focus on the perception of the residents about adaptation from actors at different levels to investigate the vulnerability as well as adaptability of the Niseko area to climate change.

9.3.1 Perception of Climate Change in the Niseko Area

Although Table 7-1 in Section 7.1 has shown the responses associated with this theme from the perspective of stakeholders as well as the directors of the NPB, it is still worthwhile to elaborate on the perception of climate change, as much of the existing literature on climate change in ski destinations has focused on this issue (e.g. Hopkins & Maclean, 2014). Hotter summers were the impacts of climate change most frequently mentioned by the interviewees, and this perception can also be reflected in the increasing demand for air conditioning. Several interviewees also referred to variations in snow conditions, including length of snow season, amount of snow, and snow quality, followed by the occurrence of extreme weather. Firsthand experience, including all these perceptions, seems to be crucial in shaping perception (C. Morrison & Pickering, 2013; Saarinen & Tervo-Kankare, 2010; Wyss et al., 2014). In addition, some interviewees felt that these changes were temporary. Among them, a small proportion even perceived climate change as an opportunity for Niseko

compared with those ski destinations that have been severely impacted, as they didn't believe climate change had already occurred.

9.3.2 Vulnerability of Niseko to Climate Change

The vulnerability of the Niseko area can first be identified by its ecological dimension. As discussed in Section 4.2, Hall et al. (2018a) stated that an examination of a destination's physical environment and ecosystem and their capacity to respond to change will be an appropriate point for destination planning for destination resilience. Furthermore, Calgaro et al. (2014) identified several factors increasing destination vulnerability, including highly seasonal, livelihood dependency, and place-specific characteristics. Based on Table 7-2 and Table 7-7, powder snow was widely acknowledged by the interviewees as the primary source of the destination's attractiveness in the case of the Niseko area, which aligns with the place-specific features. In addition, several interviewees pointed out the overreliance on winter, reflecting its high seasonality, while few also emphasized the livelihood dependency on skiing. Despite a year-round destination of Niseko promoted by the NPB and other tourism associations, the ecological dimension of vulnerability continues to be strongly emphasized.

Some elements impacting destination resilience can be viewed through a socio-ecological dimension, which stresses "the ability of the linked social-ecological system to deal with the hazard and providing insights on what makes a system less vulnerable" (Berkes, 2007, p.292). From this perspective, interviewees highlighted the lack of awareness among both residents and visitors and the lack of leadership of local government, both in specific areas such as public transport and in providing information on how residents should adapt to climate change. Awareness is one of the factors that can influence adaptive capacity (Pelling, 2011), where information, communication, and access to knowledge also play key roles (Yohe & Tol, 2002). As to leadership, it has been considered an essential prerequisite to foster a shared understanding of the importance of sustainable tourism and to guide its practical implementation (Hezri & Dovers, 2006). Evidence here can support that the

elements identified by the interviewees will reduce the adaptive capacity of the destination, thus increasing vulnerability. Besides, tourists have been perceived as “currently not taking any adaptive actions to climate change” by most interviewees. Considering the characteristics of socio-ecological resilience noted above, this lack of action renders the destination highly vulnerable to climate change impacts.

9.3.3 Actions Contributing to Adaptive Capacity and Destination Resilience of Niseko from the Perspective of Stakeholders

The interview findings from ten stakeholders reveal the commonality and differences in actions taken by residents, enterprises, as well as local governments. A commonality across all three groups of actors is the prioritization of actions to reduce CO2 emissions, identified as actions for climate change mitigation (Intergovernmental Panel on Climate Change, 2022). However, the specific characteristics of these actions vary significantly by actor group. For residents, as mentioned in Chapter 7, perceived actions appear dispersed: each action was cited at maximum by two interviewees. With regard to enterprises, apart from actions directly related to CO2 emission reduction, the implementation of green policies emerges as another dominant theme as well. This is probably due to the fact that half of the interviewees work in hotels and real estate. In addition, as content analysis of newspapers reveals, resorts in Niseko and Kutchan Town have implemented energy-saving actions as well as the utilization of renewable resources. Regarding local governments, aligning with the content analysis, the main actions remain energy-related initiatives, including saving energy and utilizing renewable energy. Among the five interviewees who mentioned this action, four come from Niseko Town while one comes from Kutchan Town. This difference may reinforce the findings from the document analysis, suggesting a focus on climate change mitigation pronounced in Niseko Town, compared with Kutchan Town.

The predominance of actions for reducing CO2 emissions taken by three groups of stakeholders perceived by the interviewees is congruent with the overarching goal of Kutchan Town and Niseko Town (Rankoshi Town was excluded from this discussion due to a lack of interviewee

representation). While a direct causal link between municipal initiatives and the actions taken by three groups of actors can't be definitively established, the results demonstrate consistency of the goal. This kind of shared purpose is a necessary element for social learning, which contributes to destination resilience to climate change (Bullock et al., 2022).

Significant convergence and divergence also emerged regarding the anticipated future actions of various stakeholder groups. For residents, the emphasis was placed on improving awareness of natural resource management, community responsibility, as well as expanding climate change education for the younger generation. Raising public awareness was also highlighted by one director of the NPB as an action to increase destination resilience. Other decarbonization actions were also mentioned, including reducing transport-related CO2 emissions such as practicing car sharing and using electric bikes, recycling and reducing the use of plastic. Notably, one of the NPB directors characterized the two latter actions as the start for showing climate-conscious values, despite their micro level nature. Khatibi et al. (2021) argued that improving knowledge and awareness will deepen engagement with climate policy, which conversely improves policies and outcomes, consequently enhancing community resilience. Given the comprehensive policy frameworks of decarbonization already enacted by local governments in Niseko and Kutchan Town, increasing public awareness is highly likely to enhance the implementation efficiency of local climate policy.

With regard to anticipated actions for local enterprises, in addition to energy-related initiatives such as saving energy during night skiing operations and improving building energy efficiency, actions for tourism businesses cannot be overlooked as well. Specified actions include improving awareness of visitors about the importance of powder snow and promoting decarbonization behaviors within accommodations. One director from the NPB also suggested that in practice, it is crucial that the private sector cooperate with local governments to improve infrastructure that supports decarbonization behaviors such as garbage sorting. Jamal & Watt (2011) underline the responsibility of tourism operators to inform and educate the visitors, while de Grosbois & Fennell (2022) emphasized the shared responsibility of producers and guests in hospitality when confronted with climate change

risks. In addition, one stakeholder interviewee stated that tourism operators should pay attention to eco-tourism. This action can attract visitors who are environmentally conscious, according to empirical evidence from newspaper content analysis.

While most interviewees possess a negative attitude toward current actions taken by tourists, most interviewees express an expectation for future actions. Most actions are related to reducing CO2 emissions and decarbonization, such as increasing the utilization of public transport, doing waste recycling, and reducing plastic use. Except for the theoretical supports, including that of de Grosbois & Fennell (2022) mentioned above and contribution to destination resilience which can be made by visitors as niche level actors stated by Amore et al. (2018), empirical evidence can be found in content analysis of official documents: the local government of Niseko Town clarifies the responsibility of visitors to cooperate with strategies and actions to reduce CO2 emissions. Besides, raising visitors' awareness was underlined again. However, the initiators were not limited to stakeholders in Niseko Town but included airlines, which can make the decarbonization actions more feasible for visitors.

Concerning anticipated actions for local governments, a significant consensus emerged among stakeholders. Most interviewees emphasized the expected roles of local governments in raising awareness of climate change impacts and sharing information. In addition, three interviewees, including two from Niseko Town, suggested that the local government should implement the climate initiatives effectively, although these two acknowledged existing energy-related actions. According to Calgaro et al. (2014), knowledge of risk as well as information are components of human and social capital which directly influence sensitivity and vulnerability of a destination to external changes. Consequently, enhancing knowledge and information is essential for increasing destination resilience. Similarly, Brooks et al. (2005) contended that governments are responsible for information dissemination on climate change. This will contribute to community adaptive capacity to climate change and thus increase destination resilience, according to Rahmawati et al. (2019).

Another point meriting attention is the effectiveness of local government policies. Content analysis reveals that Niseko Town enacted a comprehensive "Niseko Town Climate Change Mitigation

Plan (Regional Policy)" in 2011 and made a "Climate Emergency Declaration" in 2020, before the interviews carried out in 2022. In addition, the town has prioritized visualizations of climate change measures to raise public awareness concerning climate change. However, a discrepancy exists between policy and perception: all interviewees from Niseko Town expressed that the local government should raise public awareness, and two of them highlighted the need for more effective policy execution. While there is no direct evidence that Niseko Town's climate-related policies are inherently ineffective, newspaper content analysis revealed that none of the reported climate events were explicitly initiated by the local government of Niseko Town, despite the importance of such leadership being underlined in official documents. To increase public engagement in climate change policy, raising awareness and knowledge is necessary, given the strong correlation between these two factors, according to Khatibi et al. (2021).

9.4 Multi-Stakeholder Perspectives on Niseko's Response to Climate Change: An Integrated View of Destination Resilience

As previously noted, the framework of Amore et al. (2018) suggested that various stakeholders in destinations can be divided into different levels. Consequently, destination resilience depends not only on the resilience of each level but also on the interaction between actions at different levels. In other words, these cross-level interactions shape and contribute to the overall resilience of the destination. Drawing on this framework, Figure 9-1 illustrates the interactions between multi-level stakeholders in the Niseko area contributing to destination resilience to climate change. The figure encompasses the main stakeholders identified in the interviews. In addition to the stakeholders at the local scale (Niseko Area), stakeholders at the regional scale (Shiribeshi) and the central government were also presented. Furthermore, as this figure primarily shows the interactions between actors, expected intra-group actions would not appear (e.g., residents are expected to do more recycling in the future) in the figure but will be analyzed later. Within the figure, the arrow represents the actions already implemented, while the directional connector represents the expected actions that can further enhance destination resilience to climate change.

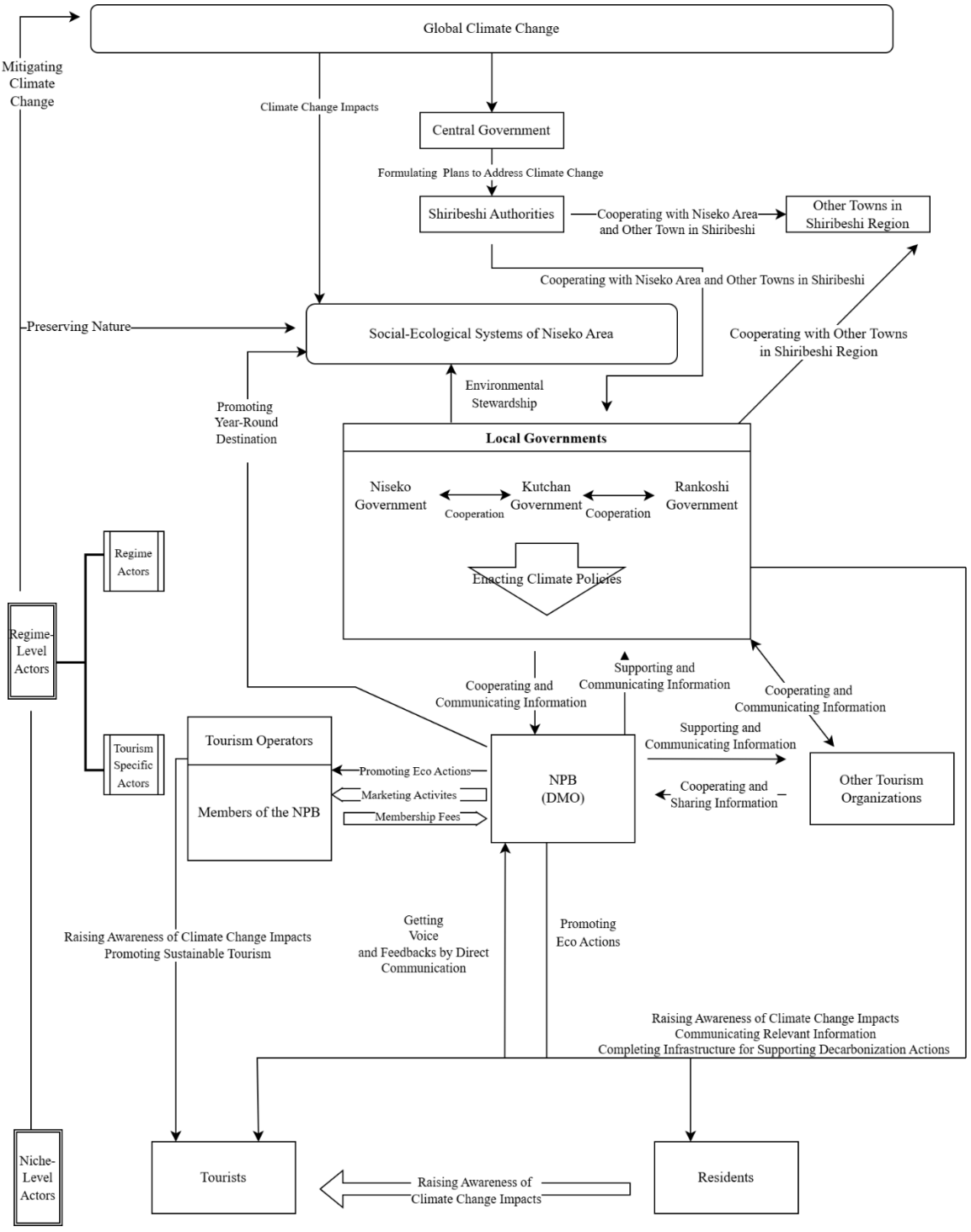


Figure 9-1 Interactions between multi-level stakeholders contributing to Niseko resilience to climate change

Source: Author, adapted from Amore et al. (2018)

When evaluating actions intended to enhance destination resilience to climate change, raising awareness about climate change's impacts emerges as the only collective action identified across stakeholders at different levels within Niseko. While regime-level actors were viewed as the initiators of this action, niche-level actors were perceived as participants. Although the newspaper content analysis revealed certain grassroots events initiated by residents to sensitize tourists and other residents, some reported events were even initiated by residents to raise tourists' awareness, regime-level actors, especially local governments, were perceived as the primary drivers for raising public awareness about climate change. Raising awareness is one of the key steps for building climate change capacity, which is a key enabler of sustainable development (Becken & Loehr, 2024). The authors stressed the importance of understanding climate change and providing relevant training from global and industry-level perspectives. Expanding upon this scope, Figure 9-1 offers insights into the significance of raising awareness at the destination level to build a resilient destination to cope with future climate change.

In addition to awareness-raising, sharing information was also anticipated at the intra-level and inter-level. As shown in Figure 9-1, local governments are expected to create a platform for facilitating information sharing among regime-level actors but also communicate climate change-related information with niche-level actors. Beyond the theoretical support discussed in previous sections, the flow of information also serves as a catalyst for resident engagement in climate policy. As detailed in Chapter 7, the anticipated decarbonization actions of enterprises, residents, as well as tourists are largely congruent with enacted climate policies, which have been shown in the content analysis chapter. However, their successful implementation hinges on active public's engagement. Supporting this, Lorenzoni et al. (2007) emphasize the importance of targeted and tailored information provision in engaging the public in climate policies. Furthermore, as suggested by Wiseman et al. (2010) and Bernauer et al. (2016), the provision of basic information to communities and stakeholders, as well as information sharing between governments and stakeholders, is crucial to addressing knowledge deficits regarding climate change, therefore raising awareness about climate change

impacts. In addition, the inextricable link between the appreciation of natural environmental resources and changes of attitudes towards mitigating climate change was justified by Jarratt & Davies (2020). Raising awareness of how climate change impacts natural resources such as powder snow deepens the appreciation of the niche-level actors for Niseko's natural resources. This, in turn, can change their attitudes towards decarbonization actions, which were expected by the interviewees in this study.

With regard to key actors in enhancing the destination resilience of Niseko, local governments were identified by various stakeholders as the primary actor. Apart from the awareness-raising and sharing of information, local governments are expected to strengthen cooperation with the NPB and other tourism organizations. In addition, based on the content analysis, the lack of cooperation between Niseko Town, Kutchan Town, and Rankoshi Town to enhance the destination resilience of Niseko as a whole can be acknowledged through content analysis. The anticipated cooperation between these three towns can enhance the destination resilience, according to Luthe & Wyss (2016). In addition, local governments were also expected to cooperate with authorities at higher scales. Besides, actions at tangible dimensions such as improving public transport and infrastructure to facilitate the recycling of waste for niche-level stakeholders were also underlined. This result aligns with the work of Wagenseil et al. (2024) in which the leading role can be attributed to governments to achieve the long-term goal.

9.5 Key Insights in This Chapter

Based on the findings presented in Chapters 6 to 8, this chapter sheds light on the organizational resilience of the NPB and its roles in enhancing the Niseko area's destination resilience to climate change. It also investigates the current actions and anticipated actions taken by diverse groups of destination stakeholders. Several key insights can be drawn. Regarding organizational resilience, the case of the NPB suggested that it is limited by the primary functions of the DMO, despite arguments of previous studies advocating the leadership of DMO during the crisis time. On the other hand, DMOs also adapt to climate change by leveraging their existing functions. In this study, the NPB emphasizes "enjoying the Niseko area year-round" as its promotion strategy to reduce the

reliance on winter tourism. Furthermore, the barriers for organizational resilience identified by the NPB are rather "external" than the "internal elements" reviewed in Section 4.2. Whether the destination is well-prepared, encompassing developed environmental stewardship as well as raising public awareness about climate change, becomes a key for this DMO's capacity to adapt to future climate change.

Regarding the NPB's roles in enhancing destination resilience to climate change, its posture is rather reactive than proactive, a characteristic frequently underlined in DMOs' roles under sudden crisis scenarios. Local governments are expected to take leadership by initiating cooperation and communication among stakeholders, as well as to complete infrastructure to facilitate climate-conscious actions by tourists and residents. This point of view aligns with that of ten stakeholders. Although grassroots decarbonization actions were also emphasized by these stakeholders, raising awareness emerges as the pivotal action that connects stakeholders at different levels and is considered vital to enhancing destination resilience in Niseko's case.

In the final chapter, final conclusions will be drawn by revisiting research purposes and research questions. The contribution of this research, including theoretical and practical ones, will also be discussed. Finally, a section introducing future research will be presented to close this research.

Chapter 10 Conclusion

This chapter first draws final conclusions by revisiting research purposes and research questions. Then the contribution of this research, including the theoretical side and practical side is clarified. At the end, further research will be discussed to close the thesis.

10.1 Revisiting Research Purposes and Research Questions

As mentioned in Chapter 1, this research aims to investigate, in the face of climate change, the organizational resilience of DMOs, their roles in enhancing destination resilience, and how destination resilience can be enhanced from the perspectives of multiple stakeholders within a ski destination through a case study of the Niseko area. Based on these purposes, the following research questions will be revisited.

10.1.1 RQ1: How is the organizational resilience of the NPB evaluated in the face of climate change and what are the possible barriers impeding organizational resilience of the NPB?

To fulfill the research aim of investigating organizational resilience of DMOs, this research evaluated the case of the NPB by means of a series of qualitative methods. Drawing on the discussions in Chapter 9, this study concludes that organizational resilience in the case of the NPB remains constrained by its core roles. In addition, these core roles fundamentally determine the extent to which the NPB can adapt to climate change, based on the fact that DMO organizational resilience is conceptualized as “how an organization adapts to changes” (Boin et al., 2010).

As mentioned in Section 3.4.3, plenty of previous studies have accentuated the uniqueness of DMOs in tackling climate issues based on DMOs’ capacity of constructing the network of different stakeholders and compromise diverse interests within destinations. However, the case of NPB offers a contrasting perspective. Given its primary mandate of marketing and destination promotion, certain adaptive actions to climate change, such as developing adaptation strategies or sharing climate-related information and knowledge, were perceived by NPB as lying beyond its remit.

Nevertheless, organizational resilience is still manifested through these core roles. In

particular, green season marketing and its new branding strategy emphasizing more nature rather than exclusively winter tourism contribute to building a year-round destination identity which, according to MacEachern et al. (2024), is an effective tool for the DMO to adaptation climate change. Some campaigns initiated by the NPB also contribute to sustainable destination development. This observation reinforces the argument of A. M. Morrison (2023) that the roles of DMOs are significant in promoting sustainable tourism and other initiatives designed to protect the environment.

In addition, the case of the NPB also stands in contrast to existing frameworks of DMO organizational resilience under crisis management. As shown in Section 4.3.2, Scarpino & Gretzel (2014) and Kuščer et al. (2022) highlighted the leadership and proactive gestures adopted by DMOs when sudden crisis happens. However, the example of the NPB stressed a reactive approach in organizational resilience, which underlines the ability of an organization to cope with changing circumstances (Lengnick-Hall et al., 2011; Paton & Johnston, 2001).

Concerning the barriers impeding the organizational resilience of NPB, two main barriers have been identified: one is related to the lack of destination environmental stewardship and development of non-winter tourism, another is continuously related to DMO's mandates. For the former, the findings are supported by the main roles of DMOs in marketing destination environment (Mihalič, 2000) and the significance of the environment in destination competitiveness (Inseek, 1991). The limited available resources, as well as the lack of attractiveness of new activities, also impose challenges (Kaján & Saarinen, 2013) on NPB's promotion of all-year-round destinations through which NPB adapts to climate change. Regarding the latter barrier, it can be concluded that NPB's mandate not only delimits the scope within which the NPB can adapt to climate change but also serves as a constraint. The NPB cannot transcend its core functions to exert control over destination development, supported by the argument of Fyall (2011). Contrary to the internal elements, including people, processes and partnership conceptualized by Hall et al. (2018b), these two identified barriers represent external factors altering organizational resilience. Besides, financial resources were indicated as a factor affecting organizational resilience of the NPB, aligning with the argument of Wagenseil et

al. (2024) and Biggs et al. (2012) that financial resources can affect the organizational resilience and implementation of sustainability in destination of DMO.

10.1.2 RQ2: What are the roles of the NPB in enhancing destination resilience of Niseko to climate change?

This research also explored NPB's role in enhancing Niseko destination resilience to climate change, which is one part of the research purposes as well. The findings indicate that the roles of the NPB are responsive and supportive in enhancing Niseko destination resilience to climate change. Specifically, the NPB fulfils its coordinator roles to strengthen communication and implementation of climate-related strategies across levels and within a level, grounded in the destination resilience framework from multiple stakeholder perspective of Amore et al. (2018). For visitors and residents who are considered niche actors by Amore et al. (2018), the NPB encourages them to behave in a sustainable way through events and campaigns designed to raise awareness of sustainable tourism. For the tourism sector, which has been identified as tourism specific actors at the regime level as the NPB, the communication and implementation of climate-related strategies can be carried out through the network between the NPB members and the NPB. This kind of membership helps to form social capital, which contributes to organizational resilience of industry businesses. This coordinator role of the NPB can be justified from two dimensions. First, stakeholder collaboration is regarded as a fundamental part of building destination resilience, which allows them to successfully respond to external changes (Filimonau & De Coteau, 2020). Besides, the roles of DMOs in coordinating and facilitating communication have also been underlined by Scarpino & Gretzel (2014) and Månsson & Eksell (2024) as crucial in crisis management.

Furthermore, the roles of governments were highlighted by the NPB directors. Although not strictly functions of the NPB itself, these roles are discussed here given that both the NPB and the local governments function as regime-level actors, according to Amore et al. (2018). The directors distinguish various roles of governments at different scales. Stronger leadership is expected to be taken by national governments, while regional governments (the Shiribeshi region in this case) were

anticipated to take initiatives to enhance cooperation among the local governments of each town within their jurisdiction. The arguments concerning the roles of national governments and regional governments align with those of Nomm et al. (2026). As for the cooperation between the three component towns of the Niseko area, it appears evident when considering varying paces in developing tourism (see Section 5.2.1) as well as their differing levels of attention paid to climate change (see Chapter 8).

Furthermore, regarding local governments, a platform facilitating communication and information sharing among tourism organizations and public authorities was pointed out. From the perspective of the whole destination, the roles of local governments center on preparing for upcoming challenges brought by climate change. Specifically, proposing sustainable products and executing environmental stewardship include completing infrastructure to help visitors to sort garbage as well as planning for land use. At the same time, intangible dimensions, including raising awareness among the public about reducing plastic use, are also expected by the NPB for local governments. It can be concluded that the anticipated roles of local governments by the NPB are both at the macro level and micro level, not limited to one group of actors but across various groups of actors.

10.1.3 RQ3: How is destination resilience to climate change perceived by multiple stakeholders and what strategies can effectively enhance this resilience?

Another part of the research purposes is to clarify how destination resilience can be enhanced from the perspectives of multiple stakeholders. As mentioned in Section 9.3.1, vulnerabilities of the Niseko area to climate change are twofold: on the one hand, climate change is gradual, which is hard to be perceived at the current stage. In addition, the destination is heavily dependent on powder snow, which can be easily impacted by climate change. These factors were identified by Calgaro et al. (2014) as high seasonality and place-specific features which can increase destination vulnerabilities. On the other hand, this study highlights several social determinants of destination vulnerability. These include the lack of awareness of both residents and visitors and the deficiency of leadership of local governments in some specific areas such as provision of information and increasing public transport.

The importance of leadership and the contribution of awareness to adaptive capacity have been respectively identified by Hezri & Dovers (2006) and Rahmawati et al. (2019). The importance of involving both ecological and social elements to evaluate destination vulnerability has been revealed by this study.

Perceptions of stakeholders regarding actions already implemented and actions anticipated to be taken by various groups of actors show convergence and divergence. For actions already taken, most of them belong to mitigation actions. However, specific actions differ among stakeholder groups. While green policies implemented by hospitality are predominant for tourism businesses, actions related to energy are the most representative for local governments. The former may be caused by half of the interviewees working in hotels. The latter aligns with the result of content analysis of official documents, showing that the main government initiatives are related to decarbonization and revolve around energy-related actions. The differences between the groups also appear in more active actions carried out by Niseko town, which aligns with the result of content analysis.

Among anticipated actions, raising awareness about climate change emerges as the only collective action identified across stakeholders at different levels within Niseko. The significance of knowledge in enhancing destination resilience has been proven by several researchers such as Calgaro et al. (2014). Moreover, given the context that local governments have enacted several policies for promoting decarbonization actions, increasing awareness will reinforce the engagement of the public with climate policy (Khatibi et al., 2021) then enhance the implementation of policies. Regarding the key stakeholder, local governments were perceived by all stakeholders as the primary actors. The initiatives expected by local governments remain both within a level and across levels. They are also assuming the responsibility to interact with public authorities at higher levels, which is necessary for destination adaptation to climate change based on the framework of Njoroge (2014).

10.2 Contribution of Research

10.2.1 Theoretical Contributions

The theoretical implications of this research involve addressing research gaps and enriching the existing literature.

Addressing research gaps

The contribution of this study lies in addressing research lacunae existing in DMOs' organizational resilience to climate change. Existing literature has mainly focused on DMOs' organizational resilience during sudden crisis. Recently, a growing body of research has shifted attention to DMOs' organizational resilience under the COVID-19 scenario. Although analogies between COVID-19 and climate change have been justified based on their long-time span, there appears to be a distinct dearth of research exclusively dedicated to DMOs' organizational resilience to climate change. Addressing this research gap through an empirical case study of the Niseko area represents a pivotal theoretical contribution of this research.

Enriching the Existing Literature

The contribution of this study to enrich existing literature can be viewed from several dimensions. First, from the view of organizational resilience, existing literature has primarily addressed that of enterprises and identified the potential impacting factors. However, this research focused on organizational resilience of DMOs and identified its determining factors as well as potential barriers. The final conclusions show that DMOs' organizational resilience as well as their roles in enhancing destination resilience, is limited by their core functions. In addition, possible barriers for organizational resilience can be "external", in contrast to internal elements conceptualized by previous studies. From the view of destination resilience, DMOs' roles have been examined by limited previous studies. Supportive and responsive roles, including coordinating diverse stakeholders and facilitating their communication, were underlined. This can enrich existing literature on this topic. As mentioned above, there is no "one-size-fits-all" resilience model. This research contributes to

enriching existing resilience models by focusing on organizational resilience of DMOs and integrating diverse stakeholders within destinations.

In addition, the perception of ski destination vulnerability to climate change as well as destination adaptation from the perspective of DMOs, has been hardly centered on by extant studies. This study takes into account the perspectives of DMOs and expands the understanding of DMOs ' roles in ski destination adaptations to climate change. Furthermore, this study contributes to existing knowledge of ski destination adaptations by moving beyond adaptive actions such as snowmaking initiated by ski resorts' perspectives by means of exploring perceptions of various stakeholders about adaptive initiatives. As noted above, snowmaking corresponds to an engineering resilience approach which emphasizes a "bounce back" to the original state. However, this research is grounded in the social-ecological resilience approach, which underscores the interaction between different systems. The conclusion of this research shows how this resilience approach can be applied under climate change scenarios.

10.2.2 Practical Contribution

The practical contributions of this research are twofold. First, this research serves as a valuable guideline for the Niseko area to calibrate future climate mitigation and adaptation strategies, particularly regarding actions involving the regional DMO (NPB). According to the latest Niseko tourism area promotion plan 2024-2028 (Kutchan Town et al., 2025), climate change and its impacts are officially recognized as one of the future threats, underscoring the need for further climate actions. However, as demonstrated in Chapter 3 and Chapter 8, on the one hand, DMOs play crucial roles in addressing climate change impacts. On the other hand, there is a distinct absence of official documents or newspaper coverage addressing NPB's roles in adapting to climate change, highlighting a regulatory and operational guidance gap. Therefore, this research provides deep insight into the factors shaping NPB's roles in tackling climate issues, as well as future actions within the Niseko area from the NPB and other stakeholders' perspectives. From the practical side, leveraging a personal network with a

staff member who is working in the NPB, the conclusions of this research can be directly communicated in seminar form.

Second, the conclusion of this research can serve as a practical reference for other ski destinations at the same phase as the Niseko area. This means that they currently still benefit from natural resources such as natural snow and have not deployed adaptive technologies such as snowmaking. However, global climate change remains a substantial risk for them. When climate actions incorporating various destination stakeholders, especially those concerning local DMOs, are developed, policymakers in these destinations can utilize this research as a useful reference.

10.3 Possible Directions of Future Studies

This study explores DMOs' organizational resilience and their roles in enhancing destination resilience, as well as strategies for strengthening destination resilience from multi-level stakeholders to climate change. Based on this research objective, future research can be conducted from various approaches.

From the perspective of DMOs' organizational resilience to climate change, future research can pay attention to DMOs of different types (at different scales, with different structures as well as in different political contexts). As mentioned above, resilience is highly context-dependent, and there is no "one-size-fits-all" resilience model. Organizational resilience of different DMOs needs to be further studied to address this topic. Besides, further studies at this topic are also meaningful in consideration of lacune of research at the current stage.

From the perspective of destination resilience, as this research only addresses the supply-side, demand-side, which means the perspectives of visitors, should be taken into account. One possible approach is to which extent the visitors accept snowmaking, especially for destinations such as the Niseko area, which are reputed for natural snow. Surveys among visitors can also be used for evaluating some adaptive strategies, such as promotion of the green season.

From the perspective of climate change, one possible direction for future studies is how

destinations adapt to worldwide decarbonization. As summarized in Section 3.2, decarbonization can severely impact small island destinations alongside the elevation of travel costs. The impacts cannot be neglected for destinations like Niseko, where foreign visitors possess a high proportion of the total number of visitors. In the case of Niseko, decarbonization actions, especially those related to energy, have been taken in some ski businesses (see Section 8.2). However, challenges and actions from the perspective of the whole destination under a decarbonization scenario need to be reevaluated to develop a climatic resilient destination.

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