

How do private stakeholders adapt to climate change – findings from two Austrian winter tourism regions

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Introduction

Tourism represents an important economic factor in Austria. Austria ranks at 12th position according to the Global Travel&Tourism Competitiveness Report 2015 (WEF 2015). Considering only direct effects, Austria's tourism industry contributed 5.3 % to the national GDP in 2013; or 7.9 % when taking indirect effects into account as well.¹ Expenditures per person are higher in winter (152 Euro) than in summer (125 Euro).² Austria is a market leader for winter holidays and holds with 52 Mio. skier days per winter season the 3rd position worldwide (after USA and France).³ Beside of that 11 % of all Austrian employees work directly for the tourism sector (2013, Statistik Austria).

At the same time, the alpine space is extraordinary affected by climate change. Since 1880 temperature has risen by nearly 2°C in Austria, half of which has occurred since 1980 and without extensive additional measures to reduce emissions one can expect a global average surface temperature rise of 3–5°C by 2100 compared to the first decade of the 20th century (APPC 2014). A temperature rise of 1°C (expected by 2030) implies that the snowfall line will move up appr. 150 metres in altitude.⁴ That would severely affect Austria's skiing resorts and wintersport municipalities, as well as the whole Austrian economic market.

The following figure shows the number of natural and artificially snow-guaranteed skiing areas in the Austrian provinces today and with temperature rises of 0.5 to 4°C. Lower Austria has only 2 skiing areas where natural snow can be guaranteed, the others already need artificial snow making for providing white slopes. With 1°C temperature rise only 2 of today's 11 skiing areas are expected to survive. But also large traditional winter tourism centres like in the province of Salzburg have to face substantial changes due to climate change. Especially a temperature increase above 2°C would severely affect the skiing areas in Salzburg. Only half of the currently existing skiing areas with natural snow guarantee could further rely on sufficient natural snow for the skiing season.

¹ http://www.statistik.at/web_de/statistiken/wirtschaft/tourismus/tourismus-satellitenkonto/wertschoepfung/index.html

² <https://www.wko.at/Content.Node/branchen/oe/Tourismus-Freizeitwirtschaft-in-Zahlen-Juni-2015.pdf>

³ [http://de.statista.com/statistik/daten/studie/247660/umfrage/laender-weltweit-nach-anzahl-der-skier-days/\[03.12.2015 12:28:04\]](http://de.statista.com/statistik/daten/studie/247660/umfrage/laender-weltweit-nach-anzahl-der-skier-days/[03.12.2015 12:28:04])

⁴ [http://www.bmwfw.gv.at/Tourismus/TourismusstudienUndPublikationen/Documents/Homepage_Version_Brosch%C3%BCre_Wallergraber_236%20\(2\).pdf](http://www.bmwfw.gv.at/Tourismus/TourismusstudienUndPublikationen/Documents/Homepage_Version_Brosch%C3%BCre_Wallergraber_236%20(2).pdf)

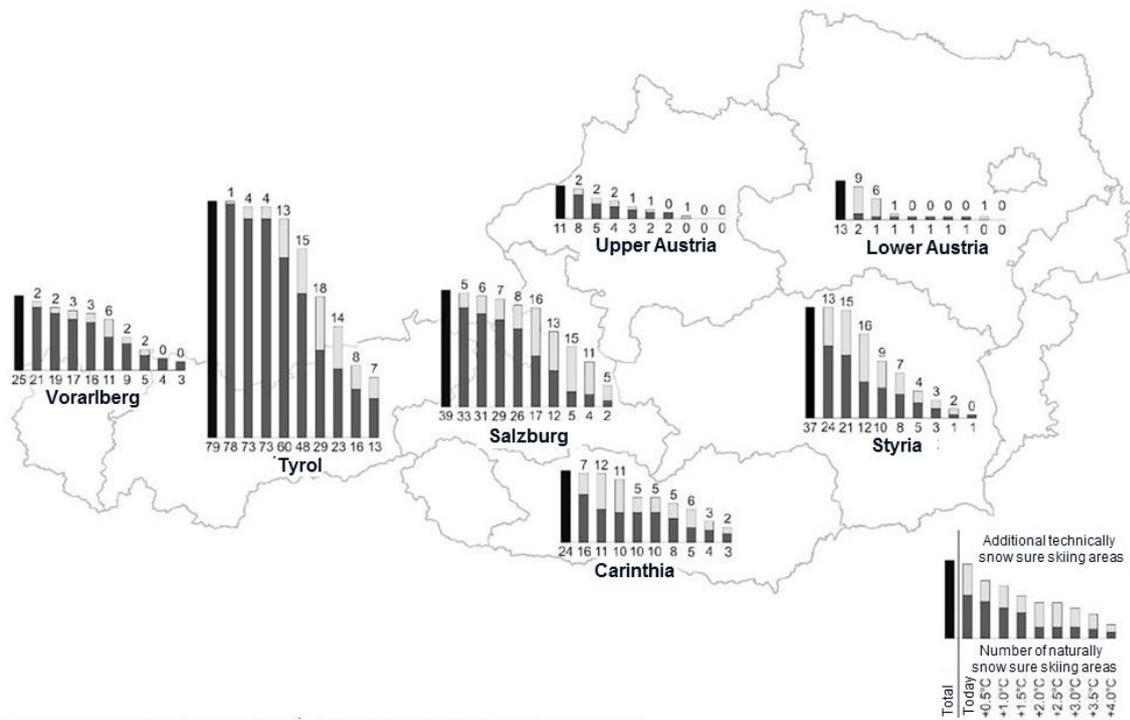


Figure 1: Numbers of skiing areas with natural and artificial snow reliability in the provinces of Austria

Source: Abegg 2012, adapted

The key question is, how stakeholders from the tourism sector deal with this challenges and how good governance could support them to adapt to the impacts of climate change. The following paper presents experiences gained and lessons learned within two case studies on climate change adaptation in relation to winter tourism. The findings are a result of a series of interviews in two exemplary Austrian ski regions with different preconditions.

Background and Methodology

The research is being conducted within the project PATCH:ES “Private Adaptation Threats and CHances: Enhancing Synergies with the Austrian NAS implementation”, funded by the Austrian Climate Research Programme. The overall aim of the project is to explore 1) the willingness, ability and capacity of private stakeholders such as farmers, businesses in winter tourism and households to adapt to climate change, 2) the impacts of private adaptation on other policy goals like resource-efficiency and climate change mitigation; and 3) the need for adaptation governance to enable or incentivise private adaptation. This paper focusses on findings from the winter tourism branch.

In our project we conducted case studies on two selected sample winter tourism regions in order to assess current and planned measures to cope with the expected climate changes. Since the case studies aimed to cover the main fields of winter tourism in Austria, we referred to two different winter tourism subtypes: a smaller skiing resort with mixed portfolio of lower intensity tourism and a large skiing resort with a focus on winter tourism, big investments and ambitious expansion plans. Criteria for selection were:

- Examples cited in literature – impacts of climate change already investigated
- High relevance of winter tourism, but other options expandable (summer tourism, event tourism, spa/wellness, etc.)

- Different tourism subtypes (from the project Adapt.AT- Bednar-Friedl et al. 2013)
- Two different Austrian provinces (as tourism lies in the competency of the provinces)
- High climate change probability/vulnerability, less snow reliability in the future → low skiing resorts without glaciers (1,000-2,000m)
- Not only day trips but also overnight stays → high dependency of not only lift operators but also of other private actors such as hoteliers, restaurants, shops etc.
- 1 smaller skiing resort with small-scale actors (limited access to financial backing and strategic information), 1 bigger skiing area with larger enterprises/organisations and tourism association
- Soft factors: tourism strategy of the region, existing awareness/activities for protection of environment and climate, etc.

Based on these criteria we chose one large skiing region in Salzburg and one small skiing resort in Lower Austria.

Parallel to the selection of the winter tourism case studies, the preparation for the interviews started. In order to align the subtasks and the issues addressed by all 3 project topics (tourism, agriculture and private households), the interview guidelines had to be developed in a joint process involving all members of the project team. Based on our knowledge from desk research we identified potential CC adaptation measures for all 3 study areas. The criteria for maladaptation (e.g. to avoid lock-in effects of path dependency) were discussed for each case and adequate interview questions for identifying the degree of maladaptation were formulated. Additional questions focussed on governance, trust in institutions and public instruments. For deriving the interview questions the team members of the 3 study areas collaborate closely.

First interviews were conducted with institutional stakeholders like representatives from the Chamber of Commerce and the Cable Car Association as well as from the Austrian hotel and tourism bank (ÖHT). They delivered first insights into governance and how the tourism sector faces climate change. Further desk research was conducted, stakeholders in the selected case study regions were identified and contacts were established. In the following, interviews in the two case study regions were conducted, recorded and analysed. The main findings were discussed within the project team and summarised in a case study report, which delivered important input for governance recommendations.

The Case studies

The two case studies are completely differently structured. The large skiing area in Salzburg provides 270 km ski slopes and 70 lift facilities. 80% of the value added in this region comes from winter tourism. Future investments also concentrate primarily on winter tourism. The smaller skiing area in Lower Austria has only 20 km ski slopes and 8 lift facilities, but a more balanced seasonal occupancy rate. In 2015, they recorded 50% more tourist arrivals in summer than in winter with a high proportion of Austrian guests (93%). Partly, this is a result from the extremely hot summer temperatures in 2015, which induced many citizens (especially from Vienna, distance only 110km) to spend a few days in a cooler region for regeneration.

The ratio of overnight stays per arrival shows that winter tourists stay longer than summer tourists, especially in the Lower Austrian region with appr. 3 nights in winter and 2.5 nights in summer. Basically, the Salzburg tourism region shows a higher ratio of overnight stays per arrival than the Lower Austrian region, namely 5.2 nights in average in winter and 5 nights in summer. On the one hand this indicates

that the larger tourism area provides a broader offer to the tourists, on the other hand this can result from the longer travel distances of the tourists as the share of foreign guests stands at nearly 80%.

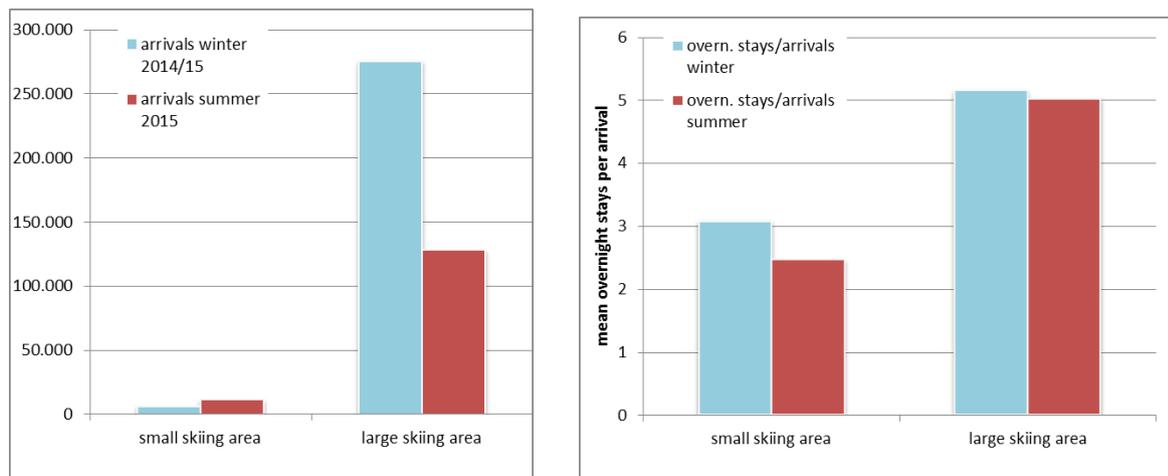


Figure 2: Arrivals and mean overnight stays per arrival in winter and summer in the two case study regions

Source: Statistik Austria, own illustration

The Lower Austrian skiing resort lies at an altitude of 768-1.334m. The climatic preconditions for natural snow are good, but climate predictions are critical for the future. Predictions for the region indicate a loss of 25% of the skiing days in 2025 and of appr. half of the skiing days in 2050 with existing snow making technologies (Prettenthaler und Formayer 2011). Only a higher intensity of artificial snow making and/or new technologies could provide sufficient snow in the future. At the same time this goes hand in hand with a higher need for water and energy, because in this case the snow cover would have to be prepared during the entire season with the help of artificial snow. The province of Lower Austria has realised the challenges for their tourism regions and has started a programme in order to support the regions in their structural change. This programme is called BIN – Bergerlebniszentren in Niederösterreich (centres of mountain experience in Lower Austria) and is supported by the NÖ BBG (niederösterreichische Bergbahngesellschaft, Lower Austrian mountain railways limited holding company). In the case study region the lift facilities have been bought by the NÖ BBG, which is now responsible for operation and maintenance of the lifts, the preparation of the ski slopes, including snow making facilities, and the parking lots. Additional investments are made by constructing hotels or improving the quality of hotels and by providing special funding only to BIN-regions.

The Salzburg case study region lies much higher, at 1.000-2.100m altitude. The climate predictions are better than in the Lower Austrian region, because until 2025 it is expected that there will be enough snow for skiing with efficient snow-making facilities. However, also in Salzburg a loss of 25-90% of the skiing days after 2025 is predicted, even with provision of artificial snow. A technological leap and huge resource expenditures are needed for maintaining the current skiing conditions. A big problem is the high variability of the natural snow conditions. With nearly 80% foreign guests, the Salzburg skiing area aims at an international market and competes with other top-skiing resorts worldwide. Thus, the regions strive for being one of the largest and most modern skiing areas in Europe. This requires joining several single skiing resorts together to one large skiing region and continuous investments in high-quality hotels, modern cable cars and perfectly prepared slopes. Still, huge investments are made by primarily private stakeholders (hoteliers, cable car operators) into winter tourism and until yet the calculation is paying off. The motivation for structural changes toward a seasonally more balanced tourism is therefore rather low.

Lessons learned

In both skiing areas there is a growing awareness of climate change and its impacts on winter tourism. The local stakeholders perceive changes in snow reliability, especially at the beginning of the winter season (before Christmas) and a seasonal shift towards the Easter season. Also changes in the frequency of extreme weather events and of years with less natural snow are noticed. However, these perceptions do not necessarily lead into concrete adaptation measures or actions. Thus, other driving forces influence the investment decisions of private stakeholders.

In the small skiing area, the stakeholders have neither the capacity for strategic adaptation measures nor the financial backing for big investments. Thus, instead of acting proactively, they rather react to changes, above all on the guests' demands, and they do so step-wise. Their motivation is to survive as long as possible and successively adapt to new guest demands. As they often rely on regular guests, a window of opportunity opens when the business is handed over to the next generation. Although winter tourism is an important regional-economic factor, it is often not the only source of income for the people living there. They know that they cannot compete with other Austrian top-regions, but they have a long tradition with regular guests and are close to the City of Vienna, which represents a great potential of guests - in winter and more and more in summer.

In the large skiing resort, climate change is not the driving force for private stakeholders. They primarily think economically and climate change has too little impact on them so far. Their motivation is to win the international competition among top skiing areas and to position their region clearly in the premium segment of winter tourism. Thus, their expansion plans are oriented towards international skiing areas like Aspen (Colorado) or St. Moritz (CH).

Even though they do not consciously adapt or set measures because of climate change, how resilient are their strategies and how are they supported by governance? Applying the concept of resilience (in the sense of Holling and Gunderson 2002, Carpenter et al. 2001) a winter tourism region needs three characteristics in order to face climate changes in the future: Puffer capacity, capability of self-organization and capacity for learning and adaptation.

As the Austrian tourism regions have to face uncertainties and changes in the next decades, they need a high puffer capacity for staying an economically prosperous region in the future. Following the principles of resilience the key question can be formulated as follows: how much change can the regions undergo and still preserve their function as an economically successful tourism region? Concentrating only on winter tourism lowers the puffer capacity and increases the dependency on snow reliability in the future. Although the climate change predictions are better for the Salzburg region than for the Lower Austrian skiing area, changes will happen and the variability of natural snow conditions grows. The puffer capacity can be increased by providing alternatives to skiing in winter and a stronger orientation towards all-year tourism. The small skiing area shows first promising approaches, as they have already more arrivals in summer than in winter. The tourism stakeholders already noticed these changes and improved their offers for summer guests ("farm holidays", guided walking tours, regional products from the national park region "Ötscherreich", etc.). Increasing temperatures in summer could induce a revival of the "Sommerfrische" ("cooling retreat"), spending holidays in cooler, mountainous regions close to the City of Vienna. This could open up a new customer segment for traditional winter tourism regions in the catchment area of cities. Thus, additional efforts in this direction could further improve the puffer capacity of the Lower Austrian region.

The Salzburg skiing region puts many efforts into specialization to a top winter spot. There are some offers in summer especially for families, bikers and hikers, but in winter it boasts one of the largest and

most modern ski areas in the world. The economic value added is still to 80% generated in winter. So raising the quality in the winter sports sector is necessary for the region for staying competitive in the ranking among other top skiing areas, but it lowers the puffer capacity regarding resilience.

As a second characteristic, a resilient region has to be capable of self-organization. In the Salzburg skiing area a few leading enterprises are located which strongly influence the future of the region. They have the capacity and resources to inform themselves about competing skiing resorts and to invest into newest technologies and modern infrastructure. They are members of a network including all important regional stakeholders. Thus, the Salzburg region holds a high degree of self-organization, even though dominated by a few leading stakeholders. The capacity of self-organization in the small skiing area is much lower. The strategic regional thinking is missing and single private stakeholders are not capable of developing a regional strategy. Here, the role of facilitators is essential for enhancing the capacity. Thus, the Province of Lower Austria decided for selecting specific regions for being part of the BIN⁵-program, supported by the NÖ BBG⁶. Several impulses have been set in order to foster networks and self-organization in the BIN-regions. However, this is always a balancing act between too much support given by a public authority, so that private stakeholders do not feel responsible any more, and valuable impulses for self-empowerment. The success of this political measure will essentially depend on the skilful coordination of regional managers (NÖ BBG, Mostviertel Tourismus), the maintenance of introduced networks and the engagement of the local stakeholders.

Finally, a resilient region needs capacity for learning and adaptation. The first step for learning and adaptation is to perceive disturbances and changes. Some climate changes are already noticed by the stakeholders in the case study regions. However, it is a second step to deal with this perception, to interpret it and to draw conclusions in order to learn from it and to adapt. Networks where knowledge and experiences can be gained and “stored” provide flexibility and a balanced cooperation and communication between the stakeholders (Folke et al. 2002). This can improve the capacity for learning and adaptation.

Although the capacity for learning and adaptation exists, an adaptation does not necessarily take place. Climate change is not the main motivation for private stakeholders to set measures. Business economic considerations mostly influence their decisions and the impacts of climate change are too vague and uncertain for them to deal with. As long as it is possible to produce artificial snow and the guest capacity is sufficient for a profitable operation, winter tourism will be sustained respectively further investments will be made. Relevant factors are guest demands and costs. If governance strives for influencing the investment patterns of private stakeholders, it has to start there. In Lower Austria, more summer tourists have been attracted through a Provincial Exhibition, which caused a big marketing effect for the whole region and which will have a long-term benefit from the infrastructure built for the exhibition. This political measure strengthened summer tourism in the region and helped private stakeholders to expand their activities and services in summer. In a small tourism region only minor measures can be taken by single stakeholders. As guests are becoming more and more demanding, small hotels cannot provide all services and offers requested by the clients. Thus, they highly depend on services and attractions offered by others within the region. In the Lower Austrian case study the construction of a new hotel, restaurant and lift initiated by the NÖ BBG improved the quality of the whole region, gave important regional economic impulses and was appreciated by all private stakeholders. This can be the crystal nucleus for further private investments and strategies. Strengthening the regional identity, network and USP will provide a crucial basis for a prosperous

⁵ centres of mountain experience in Lower Austria

⁶ Lower Austrian mountain railways limited holding company

development in the future. The marketing agency Mostviertel Tourismus, which manages at the same time the LEADER region, is an important network partner and supports this development. Besides the exhibition and the facilitator agencies, fundings influence the costs and therefore the motivation for investments. As it is a BIN-region, a special provincial funding of 10% is dedicated to these regions. Such fundings can be important especially for small investors, but they do not really initiate investments which would not have been done without funding. Thus, their potential for governing climate change adaptation measures is rather low.

In the large skiing area, tourism is an essential source of income, where most jobs are directly or indirectly affected by this sector. Companies and institutions in the region have to face major challenges in the near future like structural change, preserving of snow conditions and enhancement of product diversification. All these challenges go hand in hand with the need to lower energy and operating costs as a result of national targets. What doesn't exist is a holistic umbrella strategy for sustainable tourism or a common long time perspective. We found out the especially innovative companies who work as frontrunners for the region, are a role model for old-established companies and show the highest capacity for learning and adaptation. They are eager to reinvent their business and if they succeed, other companies copy their Best Practices. Fact is that there are a few institutions responsible for the representation of interests like several tourist associations or other unions. However, the capacity for learning and adaptation in the region could still be improved as there is a lack of coordination and power as a result of different individual interests and the weakness of the strategic approach.

Conclusions

The case studies revealed that private and public players in winter tourism are closely interwoven. Purely private adaptation measures are hard to find. Where predominantly private adaptation takes place, it is mostly not directly driven by climate change but rather by economically relevant factors like all-season occupancy and changing customer structures and demands. Nevertheless, this can show positive effects on adaptation to climate change (more events and services for summer guests), but it can also lead to negative effects ("maladaptation") like a destructive competition among the largest winter resorts.

The findings illustrate that there are basic structural differences between small and larger skiing areas which affect investment patterns and strategic behaviour of the private regional stakeholders. Accordingly different forms of governance and interventions are needed. However, what is common is the fact that climate change issues and strategies do not directly affect actions and measures of private stakeholders. Political discussions and strategies on climate change adaptation are important for the institutional stakeholders in order to provide a robust basis for their decisions and instruments. They need a sound knowledge about impacts on environment, society, economy, costs etc. and a political backing. But for influencing private implementation, governance has to support self-organization and capacity and willingness to adapt. Here, intermediaries play a facilitating role and context measures such as supporting the regional economic development seem to be most effective.

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