

Extended vulnerability of ski tourism to global change

Tobias Luthe, Ralf Roth

Abstract — The current and forecasted outcomes of global change put ski destinations under different stresses. Climate change is the most discussed and the most obvious factor that directly affects the economic success of ski areas. Latest since the last OECD report a broad discussion about such ski areas that will lose from climate change, namely the lower and smaller ones, and those potentially winning being the higher and bigger ski areas, got started. This discussion has been focusing on the main vulnerability factors elevation, size and snow making capacity. Technical snow making is the main kind of adaptation to climate change being discussed and applied. But in addition to climate change there are socioeconomic and demographic developments that lead to other grades of vulnerability for ski tourism. In the research project SkiSustain we aim to develop a sustainability management framework for ski destinations responding to global change. In the supply side part we did personal qualitative interviews in thirty six ski areas of four Alpine countries after the extremely warm winter of 2006/07. Ski areas were picked for interviews as the main drivers of investments and employment in ski destinations. Research questions were about the perception of vulnerability to global change and strategies and possibilities of adaptive capacity. In the interviews ski area managements were confronted with recent results from the customer demand survey Save-Snow to find out about the possibilities to drive changes to chances, for example by softer means of adaptation and more mitigation and partnering more with the customer. Results show that the view on vulnerability of ski destinations needs to be extended from a current climate change and elevation focused view to a much more diverse one. Current means of adaptation will not be suitable to tackle the sum of challenges from global change.

Index Terms — Extended Vulnerability Factors, Global Change, Ski tourism, Sustainable Adaptation

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1 INTRODUCTION

Climate change is seen as the main threat to ski tourism. The main impact is the rise in average temperatures with a decrease in natural snow reliability especially in lower elevations [1], [2], [3], [4], [5]. The main kind of adaptation applied is the technical production of snow. Ski areas in lower elevations and of smaller size are seen as losing from the impacts because of less snow making potential and investment opportunities. Higher and bigger ski areas are

seen as the winning ones [6]. Forecasts for the future development of ski tourism focus on direct impacts of climate change and of technical adaptation, mainly snow making, expansion and landscaping. Higher and bigger areas thus are forecasted to remain, smaller and lower ones to disappear [4]. After the winter 2006/07 we examined the experiences and perceptions of twenty ski area managements in four Alpine countries. The winter 2006/07 was the warmest in records and can be taken as an analogy for future winters becoming more frequent with similar temperatures [11].

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2 Research questions and goals

On the supply side of ski tourism we picture the destination as a system but focus on the

ski area and there on the ropeways companies as the main driving forces and the main threatened stakeholders. The interviews reflect the experiences of the unusually warm winter 2006/07. The main questions we focus on centre around the experiences of ski area managements after this analogue winter:

- How do ski areas perceive global change after their experiences of an analogue winter for future developments?
- How vulnerable do they think to be and which are sensitivity elements?
- How do they estimate their adaptive capacity and what are their adaptation strategies?
- Where do ski areas see the need for action, and where do they see chances in global change?
- What is their willingness for mitigation and would ski areas believe and invest in sustainable ski tourism?

We seek to address a number of ski areas being representative for the various kinds of existing ski areas in the main Alpine countries.

3 METHODS

The research objectives of the supply side part of this study asked for a qualitative approach with the advantages of receiving more individual and in-depth information than it would have been possible with a quantitative survey. The goal here was not to get representative results of the ski areas in the Alps. It was rather to discuss the experiences of the analogue winter 06/07 in more depth and to include the personal experiences and visions of the ski area managers. In such a discussion it is possible to inductively adapt and develop the topics according to the personal experiences and visions of the interview partner to discover topics or issues the scientist might not have thought about in advance [7].

In order to include advantages of both

kinds we chose to follow semi-structured interview plans that were guide-lined by a lined-up set of topics and questions that left enough space for going more in-depth in the one or the other topic. We thus were able to be open for the individually different experiences and situations of the interviewed partner and still came to comparable results that would be structured enough to be analyzed and compared with each other.

Our method of choice was thus the qualitative semi-structured guide-lined personal expert interview with a planned duration of about one hour of time each.

3.1 Data Analysis

The interview data was analyzed with qualitative content analysis [8], [9], [10]. We were using content analysis software MAXqda2 for the coding and the handling of the transcriptions and text bits.

3.2 Selection of Ski Areas

The ski areas were selected in order to find an even distribution in the four main Alpine countries Austria, Switzerland, France and Italy, furthermore by five categories to represent an average of ski areas in the Alps and to cover the main existing kinds of ski areas. The selection criteria were elevation, size, access, if glacier skiing is offered and the image of the destination. We combined these factors to four categories of selection:

- Low and small
- Low and big
- High and rather small
- High and big

We matched these categories with the two classes of a world leading destination (12 ski areas) and a destination of local or regional importance (8 ski areas) within the four countries.

4 RESULTS

The results show that indeed those ski areas in higher elevations suffered much less, if at all, from the lack of snow, because of their potential of snow making. The lower ski areas had huge losses due to either not enough snow making capacity and/or too high temperatures for snow making. Thus, for coping with the direct impacts of climate change technical adaptation is adequate. But, the majority of higher areas instead experienced problems of social kinds, being indirect impacts of climate change and other aspects of a broader development referred to as global change. These effects are seen as being of even greater importance in the future requiring an extended view on vulnerability. The current focus on technical adaptation proved to be not appropriate in this case and even unsustainable. Even more, the limits of technical adaptation from a resource point of view and the looping accelerating feedbacks on climate change and general environmental degradation demand for a more systematic adaptive toolbox with a shift to different kinds of behavioural adaptation including mitigation aspects with technical adaptation remaining an important integral part of it.

Major aspects in increasing adaptive capacity are more diversity of operations and in seasons, pro-active communication with the customer, also through the media, and strategic partnerships inside and outside the destination. Hereby thorough market research, benchmarking of quality and of services need to be improved. More data on the customer and more data on the outcomes of global change should help to decrease the uncertainty that makes adaptation even more difficult.

A "Model Europe" of ski destination and ski area governance is being described and shall be of strong future interest. The North American resort structure can serve as an example that needs to be adapted to the European conditions. We found the model of Dolomiti Super Ski as a good example in a more open direction of strategic partnerships on a regional scale that needs to be filled with

solutions on a local and an individual level. More diversification of the ski area operations and ownerships and more partnering with the destination will be of key interest. Massive concentration processes are ongoing and a shrinking number of ski areas will result.

The international scope of this qualitative study reveals very little differences in countries. The Germanic speaking countries are very close and equal in their perceptions, opinions and strategies, as the interviewed ones in the Italian Dolomites are. In France there are some more different opinions, more classic, more conservative views on vulnerability and adaptation strategies. Classic alpine skiing remains the main focus, the French system of governance of ski areas by single companies with centralized steering as it is now may not be the model that copes best with the challenges.

5 CONCLUSIONS

This extended view on vulnerability of ski tourism and adaptive capacity opens up chances too, such as developing new market niches and new partnerships. One example is the growing market of sustainable consumption, of going green. For a ski area this could open up new ways of operations, of costs savings, of efficiency and of "soft" adaptation, of mitigation and of new partnerships with the customer. Sustainable tourism is a way of sustainable adaptation and a market of the future ski areas will address. It is seen as a niche though for smaller ski areas and a complementary aspect on top of the basic services such as snow reliability, modern lifts and high quality ski runs. Sustainability as a strategic approach is expected to become mandatory for ski tourism. Still there is no substantial data on the market of demand for sustainable ski tourism we can base assumptions on.

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