

## **TOURISM STRATEGIES FOR ADAPTATION AND SUSTAINABLE DEVELOPMENT IN MOUNTAIN AND COASTAL DESTINATIONS IN GERMANY**

C. Bartels<sup>1</sup>, M. Barth<sup>2</sup>, H. Heinrichs<sup>2</sup>, E. Kreilkamp<sup>1</sup>, A. Matzarakis<sup>3</sup> and A. Moeller<sup>2</sup>

<sup>1</sup>Strategic Management and Tourism Management, Leuphana University of Lüneburg

<sup>2</sup>Institute for Environmental and Sustainability Communication, Leuphana University of Lüneburg, Germany

<sup>3</sup>Meteorological Institute, University of Freiburg, Freiburg, Germany

cbartels@uni-lueneburg.de

**ABSTRACT** The interdisciplinary project “Climate Change and Sustainable Development of Tourism in Coastal Zones and Mountain Regions” (CAST) combines natural and social sciences (in the fields of cooperation processes, tourism analysis and strategy, weather and climate change analysis, information and communication and knowledge transfer) in a transdisciplinary approach that includes players from tourism policy and business and which focuses on the North Sea Coast and the Black Forest. The project is divided into four phases – diagnosis, assessment, strategy/design of solutions, and evaluation – where scientific sub-projects and practical partners meet regularly to discuss the research activities, identify the needs of the actors and to jointly develop adaptation strategies like installing weather-independent alternative products and infrastructure, implementing technical improvements or offering activities for tourism all year round. These instruments should be implemented, including mitigation strategies to stabilize the anthropological greenhouse effect. The anticipatory adaptation requires communication activities on the level of the individual tourism actors among themselves and with visitors as well as processes of cooperative learning and joint decision-making in tourism regions.

**KEYWORDS:** *Climate change, tourism, adaptation, cooperation, capacity building*

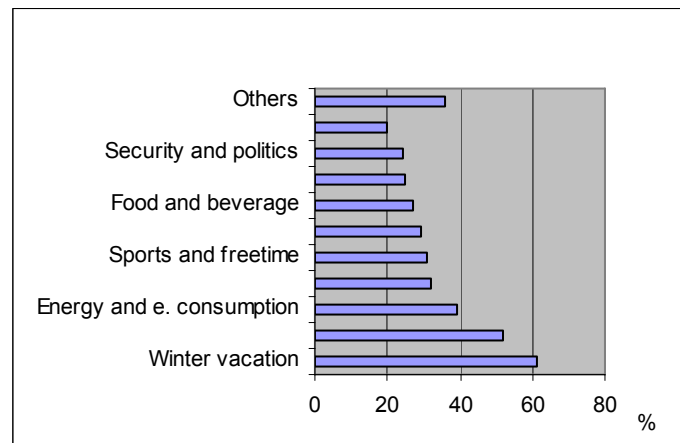
### **INTRODUCTION**

The adaptation to extreme weather events and outcomes of climate change plays an important role in sustainable development. Especially for industries like tourism, that are weather and climate sensitive, climate change constitutes a new major challenge beside other elements. Tourism is confronted with prognoses and scenarios, such as decrease of snow liability, increase of severe storms and sea-level rise (Agnew and Viner, 2001, Beniston, 2005, Matzarakis et al., 2004). As a questionnaire (2006) carried out in Austria shows that climate change will also affect tourist behaviour. Asked in which areas climate change will influence

their lives, people answered stated winter and summer vacation as the first two answers (see Figure 1).

The topic climate change and tourism is not new. The tourism sector is familiar with the challenge of climate change since the First and Second International Conference on Climate Change and Tourism in Djerba (2003) and Davos (2007).

However, studies on tourism and climate change show that tourism businesses are focused on short term decision-making and that the topic of climate change is not integrated adequately into management procedures. There is a need for climate models examining various scenarios for destinations. Studies about tourist’s traveling behavior in the case of climatic changes and prognoses that deal with the outcomes of climate change for regions that depend on tourism industry are missing. Potential reactions remain unknown by tourism players (Lund-Durlacher et al., 2007).



**Figure 1: Climate Change and Consumption in Austria. N = 740 (SDI-Research, 2006)**

Scientists rarely cooperate directly with tourism managers. Studies that use transdisciplinary approaches to tourism are based solely on climate models (see for the case of Switzerland Müller, 2007). There is a lack of different disciplines working on the successful implementation of adaptation strategies. The anticipatory adaptation to extreme weather events and expected climate change is an important aspect of sustainable development in the tourism sector, as it can change the patterns of traveller flow and create a new demand for products of the either regular or new tourists. A strategically oriented tourism policy and business is therefore challenged to integrate climate change into their decision-making processes, in order to minimize socio-economic risks and take advantage of new opportunities.

Individual activities made by single players are not sufficient enough to develop adjusted infrastructure and facilities for tourism. Besides the competition between tourism players and

an innovation of products for a sustainable development in destinations, there is a need for learning cooperation processes. Current tourism-based analyses stress the importance of collective learning for the future of tourism destinations (Saretzi et al., 2002).

Social and scientific complexity of adaptation strategies (diversity of partners, correlations of impacts, uncertainty of future trends) are to be considered for cooperation processes in tourism. To achieve this collaboration, a link between tourism as well as climatic knowledge and operating experience, concerns and perspectives is needed. In order to stimulate social learning to allow proactive action under uncertainty, scientists and players have to be involved into a transdisciplinary research, design and development process.

## **METHOD**

Based on these facts a new transdisciplinary and interdisciplinary project called CAST funded by the Federal Ministry of Education and Research was initiated in 2006. Two German destinations are used as study regions (the Black Forest as a mountain region and the Northern Sea Coast as a coastal area). Three main goals lead to the implementation of new products in the tourism sector. First, products and infrastructure as specific adaptation measures to climate change and weather extremes for the destinations will be designed following an analysis of climate and tourist trends. Second, further development of sustainable and strategic qualification for political or economic tourist players takes place in order to deal with new activities and decisions. Last, an integrative concept to support sustainable adaptation strategies by implementing a process of cooperation and joint decision-making in tourism regions is developed.

The project aims at six main „products“: Cooperation network, information and communication infrastructure, strategy and product innovation, knowledge transfer, further education, best-practice guideline, and scientific publications and presentations.

- Cooperation network: The creation and implementation of a cooperation network for a proactive adaptation to climate change in both destinations (Black Forest and North Sea) is a result of the project. The adaptation processes in the tourist regions require an agreement between the political and economic level of tourism. The situation will be analysed collectively through cooperation in learning and designing methods. Afterwards, visions for a sustainable approach and innovative products in the tourism sector can be developed and used. Thus, the project aims to develop communication and cooperation structures of the relevant players in the two destination regions.

- **Information and communication infrastructure:** The development and supply of an information and communication platform is important for the construction and stabilization of a cooperation network. Technology is therefore used on the one hand within the project (via homepage, weblogs, online section for registered users only) to distribute complex information and data (especially collected at tourist and climate researches) between all scientists working on the project, but also in dialog with the tourism players and other stakeholders. On the other hand the tool is externally used to inform anybody who is interested in the project or further research on the topic of climate change and tourism in Germany or other countries. After the end of the project the webpage will remain available for the regions to be continued by the acteurs to complete the adaptation strategies, which will probably not be completed by the end of the project.
- **Strategy and product innovation:** Both, the implementation of cooperation networks in both regions and the development or use of computer-based information and communication platforms provide a basis to improve the design of reasonable and sustainable products for the tourism sector that consider chances and risks of climate change. The knowledge gained from tourism and climate research about situational and future analyses can be used to define requirements for the integration of climate change into the conventional (marketing) management. Together with the players, the project generates innovative adaptation strategies and concrete operational procedures for the tourism industry on site. Thus, the development and design of examples that illustrate practical adaptation measures are major results of the project.
- **Knowledge transfer, further education:** To ensure a long-term integration of the results on sustainable tourism strategies, further education and qualifications of tourism players are important. After the development of new measures, individual and organisational learning can help to form decision and to design competences. To achieve this goal the sub-projects provide together with the tourism players material which can be used as information for specific target groups. A computer-based learning platform for self-education will be tested and evaluated. The final product presents a module for further education to assist tourism players in skills to implement sustainable adaptation strategies in both the destinations as well as the tourism sector in general.
- **Best-practice guideline:** The results based on the research in the two destinations Black Forest and North Sea will be combined at the end of the project to create an integrative concept. This best-practice guideline can be used by any tourism player who is interested in

adaptation strategies, either on a political or business level. The two studied destinations serve as examples of coastal and mountain regions and illustrate the theory, process and success possibilities of the project. With the best-practice guideline a transfer of the knowledge gained from the project for practical experience in tourism will be available. A working group of politicians and tourism players on a national level will assist in distributing the gained knowledge among other German destinations.

- Scientific publications and presentations: Besides this report, the understanding of the interdisciplinary and transdisciplinary process is passed on to the scientific community via publications and presentations at conferences to initiate further discussion and research in the topic of tourism and climate change.

These „products“ are supposed to help to achieve the three goals mentioned before. However, the project should stress the five real-situation-oriented outcomes rather than the scientific publications and presentations.

Goals and products of the project are to be achieved with the help of a transdisciplinary approach formed with the knowledge of scientists and tourism players. Five sub-projects (SP) provide the competence in the following scientific fields (see Figure 2):

SP 1 Cooperation processes

SP 2 Tourism analysis and strategy

SP 3 Weather and climate change analysis

SP 4 Information and communication and

SP 5 Knowledge transfer and development of competences

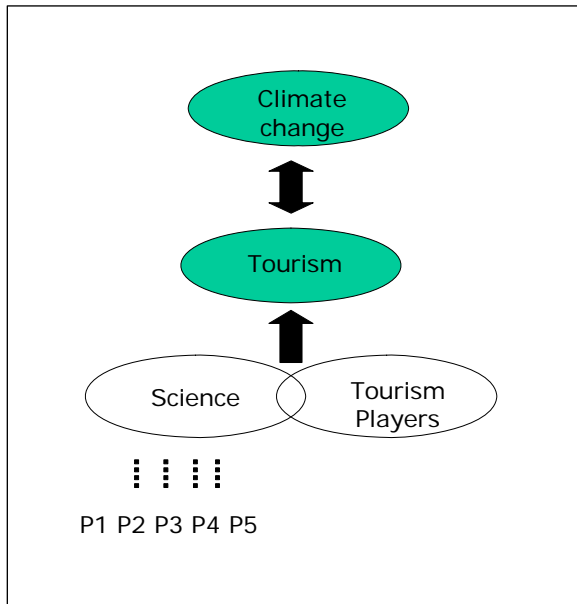
In order to establish the link between the sub-projects, but also between scientists and tourism player's work and activities, a controlled interface management is systematically created by SP 1. The organisation of the multilateral correlation is important for the orientation of the project members, especially for the general perspective, data transfer, and communication. Instruments like meetings and workshops support the collective knowledge background. For the organisation of the cooperation network SP 1 analyses with the assistance of SP 2 (tourism analysis and strategy) the needed tourism players available on site.

SP 4 establishes at the same time an information and communication infrastructure. To provide a user-friendly platform, the structure is adjusted and based on the tourism player's judgement. SP 2 and SP 3 integrate data from tourism management and meteorology in the information system while SP 1 supports an efficient use of the communication platform.

SP 2 is responsible for the development of strategies and innovative products in marketing planning, which are created together with the practical knowledge of the tourism players in

the destination regions. This way of cooperation is also important for the construction of a questionnaire to analyse the travel behaviour under the conditions of climate change.

The situation and trend analysis, as well as new strategies based upon the climate models, are calculated by SP 3. The meteorologists and SP 2 coordinate together with SP 1 the process of



the cooperative designing process especially during the workshops. On the internet platform SP 4 will present the results. With the data and results of sub-projects 2 and 3, SP 5 creates a module providing knowledge transfer. This educational platform for self-controlled learning is generated in cooperation with SP 4, the information and communication technologies, and the tourism players in order to form a user-friendly system. The sources of SP 2 and SP 3 are essential for the development of learning material based on tourism and climatic facts.

**Figure 2: Structure of project CAST**

The use of a learning platform and the inclusion of this topic in personal discussion groups or seminars take place in arrangement with the tourism players. Finally, SP 1 takes the responsibility for the formation of the best-practice guideline.

## RESULTS

The success of this transdisciplinary project depends on the coordination and synchronisation of all sub-projects and their partners. The project and working process is divided into four phases which, in combination with workshops and meetings, produce the five project products:

1. **Diagnosis:** In the first phase a situation and trend analysis takes place. Scientists and tourism players decide which data is needed for further climate-based decisions in case of climate models and future trends in the tourism sector.
2. **Assessment:** In the second phase the participants deal with the results from the first analysis (mainly climate models and a questionnaire about tourists' travel behaviour) considering

the question what the data show about future development in the two destinations North Sea and Black Forest. The assessment aims at identifying the possible actions.

3. Strategy design: The strategic development of new infrastructures and products in the two model destinations is the aim of the third phase. A mixture of methods for participation, cooperation and development of creative techniques is introduced to allow learning processes and to analyse the necessity of new products in a sustainable tourism.
4. Evaluation: In the last phase scientists and tourism players evaluate which possibilities and limits are to be expected during the implementation and whether this transdisciplinary and interdisciplinary approach helps for a successful adaptation to climate change in the tourism sector. A cooperation analysis is the base of a concept which includes the single components information and communication platform, innovative strategies and products, and knowledge transfer.

With this approach the project CAST wants to support both the scientific discussion about climate change and tourism as well as the capability of adaptation for economic and political players in tourism.

#### **ACKNOWLEDGEMENT**

This research is supported by The Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF).

#### **REFERENCES**

- Agnew, M.D. and Viner, D. (2001) Potential impacts of climate change on international tourism. *Tourism and Hos. Res.* 3(1), 37-60.
- Beniston, M. (2005) Warm winter spells in the Swiss Alps: Strong heat waves in a cold season? A study focusing on climate observations at the Saentis high mountain site. *Geophys. Research Letters*, 32, L01812.
- Matzarakis, A., de Freitas, C., and Scott, D. (Eds.) (2004) *Advances in tourism climatology*. Ber. Meteorol. Inst. Univ. Freiburg Nr. 12.
- Lund-Durlacher, D., Strasdas, W., and Seltmann, E. (2007) *Klimawandel und Tourismus" Problemwahrnehmung und Loesungsvorschlaege aus Sicht der Touristiker*. [Ergebnisse der Blitzumfrage] [http://www.fh-eberswalde.de/de/Studium/Master-Studiengaenge/Nachhaltiger\\_Tourismus/Aktuelle\\_Projekte/Veranstaltungen/K1643.htm](http://www.fh-eberswalde.de/de/Studium/Master-Studiengaenge/Nachhaltiger_Tourismus/Aktuelle_Projekte/Veranstaltungen/K1643.htm) (accessed on 08.06.2007)
- Mueller, H.R. (2007) *Klimaszenarien für das Berner Oberland 2030*. <http://www.fif.unibe.ch/Klima%20BeO%20Thun-070305.pdf> (accessed on 01.08.2007)
- Saretzi, A., Wilken, M., and Woehler, K.H. (2002) *Lernende Tourismusregionen: Vernetzung als strategischer Erfolgsfaktor kleiner und mittlerer Unternehmen*. Muenster.
- SDI-Research (2006) *Klimawandel und Konsumverhalten*. <http://www.sdi-research.at/aktuell/hintergrund/studie-klimawandel-veraendert-konsumverhalten-sdi-research.html> (accessed on 12.09.2007)