# CARBON MANAGEMENT IN TOURISM

## MITIGATING THE IMPACTS ON CLIMATE CHANGE

STEFAN GÖSSLING

ROUTLEDGE

# Carbon Management in Tourism

## Mitigating the impacts on climate change

Stefan Gössling



Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2011
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Simultaneously published in the USA and Canada
by Routledge
270 Madison Avenue, New York, NY 10016

*Routledge is an imprint of the Taylor & Francis Group, an informa business*



Typeset in Times New Roman by Swales & Willis Ltd, Exeter, Devon
Printed and bound in Great Britain by TJ International Ltd,
Padstow, Cornwall



*British Library Cataloguing in Publication Data*
A catalogue record for this book is available from the British Library

*Library of Congress Cataloging in Publication Data*
A catalog record has been requested for this book

ISBN: 978–0–415–56632–2 (hbk)
ISBN: 978–0–415–56633–9 (pbk)
ISBN: 978–0–203–86152–3 (ebk)

# Preface

The final chapters of this book were written in the months after the December 2009 UN Conference on Climate Change in Copenhagen (Conference of Parties 15), which ended as a failure, largely due to the refusal of the Chinese government to accept any binding global reduction targets for climate mitigation – even if these targets were set by other countries or regions, such as the European Union (EU), and only comprised these countries' or regions' own emissions. Despite observations of climate-related ongoing changes in the environment, and increasingly urgent warnings by key climate scientists, national interests and a new wave of 'climate scepticism' have dominated rational action to find a solution to what is one of the most important long-term problems of our time: limiting climate change on global average to a maximum warming of 2 °C by 2100 compared to pre-industrial levels.

It is not too difficult to see why there is reluctance to engage in mitigation: in the USA, the country solely responsible for about a quarter of global emissions of greenhouse gases (GHG), ambitions by the Obama administration to initiate significant cuts in emissions have stopped short in Congress, where the country's industrial lobby has exerted considerable pressure to counter what is (correctly) perceived as a threat to the emission-intense US-American lifestyle. The same lobbyists are also involved in various actions to question and discredit climate science – a process supported by a conflict-hungry media – leading parts of the population to believe that there is no scientific consensus on climate change as a phenomenon, and uncertainty regarding its human causes. In China, the country responsible for another quarter of global GHG emissions, the past ten years have seen unprecedented economic growth. The Chinese government, keen on leapfrogging a large and often impoverished population to economic prosperity, has been keen to outline that per capita emissions are still moderate in the country and that, in historical terms, China has been a negligible contributor to the problem. One might add that a considerable share of the country's current emissions is a result of production for industrial countries.

This leaves the world with a challenge: there is consensus that warming beyond 2 °C, often defined as the level that constitutes 'dangerous interference with the climate system', will be largely detrimental to humanity, but there is no willingness to initiate measures that will significantly cut emissions of greenhouse gases. The EU is so far the only region in the world with binding emission reduction targets, even though many states within the USA

and Canada envisage making cuts in their own emissions. Moreover, a number of emission-intense countries have announced ambitions to reduce emissions on a voluntary basis. The Stern Review (2006) and other studies have shown that in the long run, mitigation is less costly than non-action, and the refusal of many countries to join a global agreement on binding mitigation goals would strike many as a paradox, particularly as even far-reaching measures to decarbonize the global economy would only cost a fraction of what it has cost to address the global financial crisis. Again, an explanation could be that many actors seem to think that adaptation to climate change is a more viable alternative to deal with the problem, notably postponing action to the future, and possibly leading humanity on a path to geo-engineering, i.e. the manipulation of global biogeochemical systems. This opens up a new dimension of risk, possibly on a scale never experienced before by humanity, as the consequences of changing global systems as well as the limits to adaptation are not well understood (see e.g. Trick *et al.* 2010). A rational conclusion is that mitigation based on reducing energy use and the development of renewable energies needs to be a key priority.

Reducing emissions at the speed required to stay within safe limits of climate change is an enormous task, however, demanding far-reaching changes in the way economic systems operate, the degree of innovation and restructuring needed, as well as the lifestyle choices made. While the global economy might actually profit from massive investment in green technologies, unleashing a new cycle of more sustainable growth, it will be far more difficult to change lifestyles. Tourism and leisure in particular will be central elements in this endeavour, as relaxation, experiences of new cultures and environments, and visiting friends and relations are powerful elements in contemporary lifestyles. Moreover, tourism and travel are associated with strong emotions and belief systems, where cheap motorized private mobility has come to be understood as a basic human right in industrialized countries. At the same time, tourism is one of the main, or *the* main, source of individual emissions for a considerable share of humanity. This makes mitigation in tourism potentially difficult.

The idea for this book was born out of two major observations. First, in encounters with stakeholders of large and small tourism enterprises, there has often been an expression of deep scepticism regarding the seriousness of climate change and its relevance for tourism. Few stakeholders seem to wish to engage with the abstract concept of $CO_2$, the main GHG responsible for climate change. While this is understandable from an organizational point of view – after all, there are already too many problems to be dealt with on a day-to-day basis – it is surprising that this disinterest also seems to comprise energy-related issues more generally: energy has essentially remained a non-issue in tourism, even though saving energy can entail considerable short-term profits. Hilton Worldwide, for instance, reports that energy management helped to reduce emissions by 15 per cent, corresponding to savings of US$16 million in the period 2005–08. Many case studies in this book have shown similar potential for emission reductions that are entirely economical – in most cases a range of simple measures can cut 10–15 per cent from energy consumption. If savings can be this substantial, why is there not a greater interest in energy management in the global tourism industry?

Several explanations seem possible. Broadly speaking, energy use has remained a non-issue because it has been cheap – and humans only tend to preserve what is scarce and

expensive. More specifically, business management programmes have only recently taken an interest in environmental management, and graduates with a basic understanding of these issues have not as yet entered the decision-making ranks of the industry. In tourism businesses where more substantial pro-environmental management has occurred, for instance in the Scandic Hotel chain, this engagement has often been born out of the need for innovation and/or the environmental interest of top executives. For most players in tourism, however, energy and emissions remain issues of little interest and value: high energy use is even, in some businesses, seen as a sign of quality and potency, while climate change remains disregarded as a concept abstract in time and space.

This book argues that this perspective ought to change. Of the arguments presented to support this view, two might be particularly powerful. The first is economic: in mid-2008, oil prices reached a price of US$147 per barrel, leading to considerable changes in the perception of energy as a cost factor, particularly in the aviation sector. Even though energy prices declined again to about US$40 per barrel in autumn 2009, it seems clear that in the medium-term future, fossil fuels will become more costly again. Reducing energy use consequently means saving costs and increasing competitiveness. A second argument is that even though a global agreement on emission reductions has so far failed to materialize, the EU and some other countries have established emission reduction targets of their own. The UK has a legally binding national target for emission reductions. These developments are likely to lead to growing costs for mobility and energy-intense activities – notably even for countries not seeking to reduce emissions: the EU's integration of aviation in its Emission Trading Scheme (EU ETS), for instance, will include international carriers as well. Businesses should thus prepare for tougher climate policy to emerge in the next decade. In summary, carbon management is an issue of economics in the short-term future, and an important adaptation process in the medium-term future. As always, forerunners are likely to have a competitive advantage in dealing with change.

This book is intended as a resource for students, academics and stakeholders in tourism. It provides a comprehensive introduction to a complex and often theoretical and abstract topic: carbon management. To facilitate reading and understanding, 33 'Carbon Management in Focus' case studies illustrate management pathways that have already been proved to work. Tourism is, currently, one of the least eco-efficient sectors in the world. *Carbon Management in Tourism* is intended to address this, with the ultimate goal to make the sector more competitive, innovative and profitable.

Many friends, colleagues and partners in industry have supported this book with their time, energy and advice. On the industry side, I am particularly thankful to Michaela Weitkamp, Aarnout Mijling, Angela Giraldo, Bård Huseby, Bart Otto, Bruno Peters, Dirk Heese, Dr Peter Brandauer, Gerd Deininger, Inger Mattsson, Jens Morawetz, Jörg Adler, Dirk Wewers, Karlyn Langjahr, Bertram Späth, Michael Liebert, Hans-Peter Christoph, Kati Ihamäki, Kristine Simonis, Laurent Le Breton, Lottie Knutson, Valere Tjolle, Manfred Kojan, Marie Malmros, Marion Heider, Mark de Bruin, Matthias Meier, Michael Grehl, Michael Schürch, Oliver Noppen, Pär Larshans, Paul Cooper, Rolf Pfeifer, Pascal Jenny, Edgar Meier, Simone Probost, Arnfinn Oines, Auden Schendler, Stefanie Hidde, Stephanie Schulze, Susi Zentner, Sybille Riedmiller, Thomas van den Groenendaal, Pascal Jenny,

Preben Byberg and Ute Linsbauer for providing me with information that has been essential input for the various case studies.

Among the colleagues that have helped to develop much of the knowledge this book is based on, I am particularly indebted to Wolfgang Strasdas, who has helped to identify the case studies and collected some of the material contained in the presentations, for which I am extremely grateful; Paul Peeters, who has patiently responded to a hundred requests for data, calculations and the latest update on all sorts of transport-related topics; Bernard Lane, who is an enormous resource within all areas of sustainable tourism development and always willing to share his knowledge; as well as the troika Michael Hall, Paul Peeters and Daniel Scott, with whom I have written more articles in recent years than with anyone else. Most of this book is based on this work.

I also owe many other colleagues for their support, suggestions, critical assessments, ideas and friendship, including, in alphabetical order, Carlo Aall, Ralf Buckley, Susanne Becken, Robert Bockermann, Paulina Bohdanowicz, Petra Bollich, Dietrich Brockhagen, John Broderick, Jean-Paul Ceron, Tim Coles, Janet Dickinson, Ghislain Dubois, Alain Dupeyras, Eke Eijgelaar, Frida Ekström, Elin Eriksson, Warwick Frost, Mathias Gößling, Roger Graf, Johan Hultman, Karl Georg Høyer, Marcell Kästner, Jennifer Laing, Lone Lamark, Leslie Lumdson, Michael Lück, Chris Lyle, Dagmar Lund-Durlacher, Jan Henrik Nilsson, Romain Molitor, Shuna Marr, Karmen Mentil, Sabine Minninger, Jörn W. Mundt, Jamie Murphy, Rolph Payet, Helena Rey, Brent Ritchie, Murray Simpson, Paul Upham, David Weaver, Emma Whittlesea and Andreas Zotz. I am also indebted to all those colleagues who make my different working environments liveable places – Agnes Landstad, Agnes Brudvik Engeset, Marte Lange Vik, Eivind Brendehaug, Otto Andersen, Erling Holden, Ståle Brandshaug, Ivar Petter Grøtte, Eli Heiberg, Idun Husabø, Guttorm Flatabø, Christer Eldh, Erika Andersson Cederholm, Richard Ek, Hervé Corvellec, Katarina Zambrell, Per Pettersson-Löfquist, Hans Wessblad, Christer Foghagen, Maxmikael Björling, Anneli Andersson, Hartmut Rein, Holger Lütters and Dörte Beyer. Agnes Landstad and Katarina Zambrell supported me with funds to employ assistants, without which I could not have managed to finish this book in time. Malin Jonell has done a superb job in collecting material for the case studies and copy-editing the material, and has later on been supported by Karin Froms-Andersson. I am also extremely grateful to Emma Travis for her very efficient, personal and professional support at Routledge, and Faye Leerink for efficiently managing the production process. My sincere thanks to all of you.

In concluding this preface, I wish to express my deepest gratitude and love to Linnea and Meike Rinsche, because much of the time invested in this book should have been yours. This book is yours, Linnea, and that of your generation. It is all I can do to address our wastefulness of this planet.

Berlin, Helsingborg, Kalmar & Sogndal, March 2010
Stefan Gössling

# Contents

# Figures

# Tables

# Carbon management in focus case studies

# 1 Travel, tourism and carbon management

Tourism has grown immensely over the past 60 years. From 1950 to 2005, international arrivals have grown by 6.5 per cent per year, i.e. from an estimated 25 million in 2050 to 806 million in 2005 (Figure 1.1; UN World Tourism Organization (UNWTO) 2001, 2010a). In the following three years to 2008, international arrivals increased by more than 100 million to 920 million. By then, however, the global financial crisis set a stop to the strong growth trend, and arrivals declined by 4 per cent in 2009 to 880 million (estimate, UNWTO 2010b). However, UNWTO (2010b) projects that the world economic system will stabilize and that growth will resume at 3–4 per cent in international tourist arrivals in 2010 to reach 1.6 billion in 2020 (UNWTO 2001).

Domestic tourism has grown even faster, and accounts now for almost 10 times more tourist trips than international tourism (UNWTO-UNEP-WMO 2008). The enormous growth in

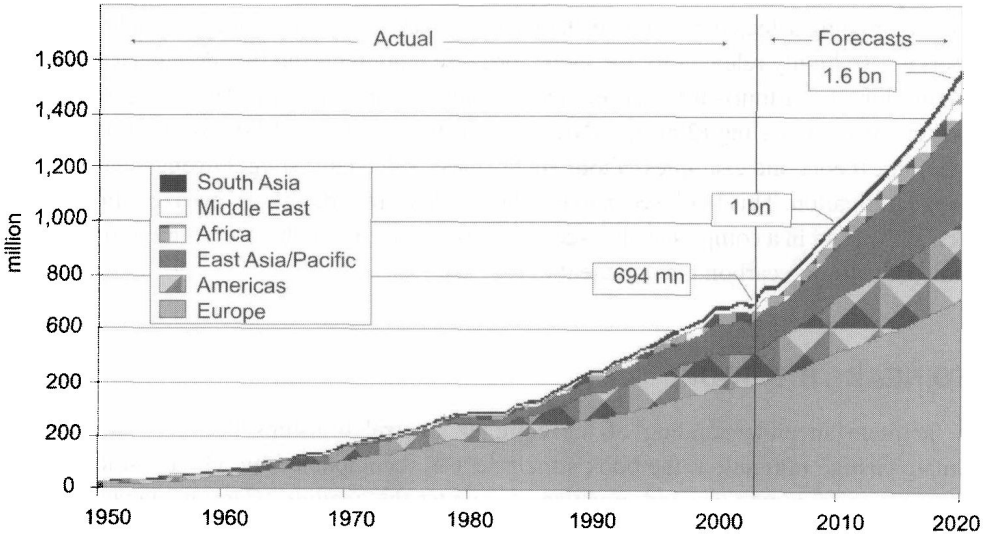


***Figure 1.1*** *International tourist arrivals 1950–2020*
*Source:* based on UNWTO 2001, 2010a

global mobility for leisure and business has been going along with high and growing energy use: travel to the destination, staying at the destination, and tourist activities are all energy-intense. As most energy for tourism is derived from fossil fuels, tourism is also a significant contributor to climate change. In the future, with an expected 1.6 billion international tourist arrivals by 2020 (UNWTO 2001), tourism is likely to become an ever more important factor in global warming, particularly in a world seeking to decarbonize. So far, few actors in tourism appear to have been concerned with this. As this book argues, there is thus an urgent need to address energy consumption and associated emissions of GHGs in tourism planning, management, politics and education.

Even though *Carbon Management in Tourism* is the first book to exclusively deal with emissions from tourism, aspects of climate change mitigation in tourism have been considered in a number of scientific books, including C. Michael Hall and James Higham's (2005) edited volume *Tourism, Recreation, and Climate Change*, which covers a wide range of related issues; Stefan Gössling and C. Michael Hall's (2006) *Tourism and Global Environmental Change*, another edited volume with an ecosystem-/theme-specific approach; and Susanne Becken and John E. Hay's (2007) *Tourism and Climate Change*, which provides a general overview of tourism, adaptation and mitigation, and a very readable introduction to many basics of mitigation.

Moreover, there have been two reports summarizing the knowledge in the field and providing specific advice of how to achieve emission reductions. These are 'Tourism and Climate Change: responding to global challenges', published by the UN World Tourism Organization (UNWTO), United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO) in 2008, as well as 'Climate Change Adaptation and Mitigation in the Tourism Sector: Frameworks, Tools and Practice', published by UNEP, Oxford University, UNWTO and WMO, also in 2008. 'Tourism and Climate Change: responding to global challenges' is still the most comprehensive overview of the two-way relationship of tourism as a sector being affected by climate change as well as contributing to climate change. The report is also highly relevant for this book, because it contains the first detailed assessment of emissions from tourism transport, accommodation and activities (for an earlier rough assessment see Gössling (2002)). UNEP-Oxford University-UNWTO-WMO (2008) contains some theory and examples of tourism businesses that have sought to engage in climate change mitigation. This book seeks to go beyond these reports by summarizing the knowledge in the field in a comprehensive state-of-the-art review, and by providing in-depth case studies illustrating carbon management in practice.

## HOW TO READ THIS BOOK

To facilitate an understanding of the complex interrelationships between tourism and climate change mitigation, the book's main text is accompanied by 33 case studies from 17 countries of companies and organizations under the heading 'Carbon Management in Focus'. These provide in-depth descriptions of innovative management strategies, where possible in combination with calculations of carbon savings, costs and profits – the latter either financial or including marketing, branding, loyalty, insurance or other benefits. This