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CLIMATE CHANGE AND TOURISM: A GLOBAL CHALLENGE

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Abstract

The integrated effects of climate change willhave far-reaching consequences for tourism andthese impacts will vary substantially by market segment and geographic region.Without doubt, climate is one of the essential parameters influencing tourism. Changes in global climate are beyond the control of the tourism industry and may have far-reaching consequences for many current tourist destinations as well as for places contemplating involvement in tourism.

Introduction

Climate change is rapidly emerging as one of the toughest and most threatening issue of the 21st century. This issue has the potential to substantially damage our planet.The costs and consequences of climate change on our world will define the contours of this century. Even if nations across our planet were to take immediate steps to rein in carbon emissions—an unlikely prospect—a warmer climate is inevitable. As the U.N. Intergovernmental Panel on Climate Change, or IPCC, noted in 2007, human-created "warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level."

The Inter-governmental Panel on Climate Change (IPCC) declared that 'warming of the climate system is unequivocal' (IPCC 2007a). The global mean temperaturehas increased by 0.76°C between 1850–1899 and 2001–2005 and the IPCCconcluded that most of the observed increase

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in global average temperatures since the mid-20th century is 'very likely' (> 90% probability) the result of human activities that are increasing greenhouse gas (GHG) concentrations in the atmosphere. The IPCC (2007b) predicts that the pace of climate change is 'very likely' (> 90% probability) to accelerate with continued GHG emissions at or above current rates, with globally averaged surface temperatures estimated to rise by 1.8°C to 4.0°C by the end of the 21st century. Changes in temperatures and other climatic features will vary globally (IPCC 2007b). It is very likely that hot extremes, heat waves and heavy precipitation events will continue to become more frequent. Tropical cyclones will likely become more intense, with larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical sea surface temperatures. Decreases in snow cover, already observed in some regions, are projected to continue. The regions affected by these extreme events, including many major tourism destinations, will expand. These predicted changes highlight the need for awareness and preparedness for natural hazards at the local level through systematic capacity building and strategies for disaster risk management (UNWTO 2007b).

Tourism is a very important branch of the economy, but it is important also for human entertainment, relaxation, and recreation. Without doubt, climate is one of the essential parameters influencing tourism. Changes in global climate are beyond the control of the tourism industry and may have far-reaching consequences for many current tourist destinations as well as for places contemplating involvement in tourism. Understanding how climate and weather influence tourism is necessary if we want to estimate the impacts of climate change on tourism. UNWTO has determined that tourism is a primary source of foreign exchange earnings in 46 out of 50 of the world's Least Developed Countries (LDCs) (UNWTO 2007c, see also UNDP 2005; Hall 2007). Global discourse over Africa and UNWTO's Sustainable Tourism for Eliminating Poverty (ST-EP) initiative re energised the debate about pro-poor tourism or tourism for poverty alleviation (Hall & Coles 2008b: 277; Simpson 2008a; Schilcher 2007). Tourism has the potential to lift people out of poverty through the employment and entrepreneurial opportunities it provides, and the recognition of tourism's role in poverty alleviation has made it a substantial component of the international development and trade agenda

(Hall & Coles 2008a, b). The tourism sector also embraces, and has the potential to make a substantial contribution to the achievement of, the United Nations' Millennium Development Goals (UNWTO 2007c). This, however, demands that the sector adapts to climate change, and, as important, reduces its contribution to climate change through emissions of greenhouse gasses, and the overall environmental footprint of tourism. Both aspects require substantial changes in the tourism production system.

Climate Change Impacts on Tourism

With its close connections to the environment and climate itself, tourism is considered to be a highly climate-sensitive economic sector similar to agriculture, insurance, energy, and transportation. Indeed, climate change is not a remote future event for tourism, as the varied impacts of a changing climate are even now becoming evident at destinations around the world and climate change is already influencing decision-making in the tourism sector. There are four broad categories of climate change impacts that will affect tourism destinations, their competitiveness and sustainability (UNWTO-UNEP-WMO 2008).

Direct climatic impacts

Climate is a principal resource for tourism, as it codetermines the suitability of locations for a wide range of tourist activities, is a principal driver of global seasonality in tourism demand, and has an important influence on operating costs, such as heating-cooling, snowmaking, irrigation, food and water supply, and insurance costs. Thus, changes in the length and quality of climate-dependent tourism seasons (e.g., sun-and-sea or winter sports holidays) could have considerable implications for competitive relationships between destinations and therefore the profitability of tourism enterprises. Studies indicate that a shift of attractive climatic conditions for tourism towards higher latitudes and altitudes is very likely. Uncertainties related to tourist climate preference and destination loyalty require attention if the implications for the geographic and seasonal redistribution of visitor flows are to be projected (UNWTO-UNEP-WMO 2008).

The IPCC has concluded that increases in the frequency or magnitude of certain weather and climate extremes (e.g. heat waves, droughts, floods, tropical cyclones) are likely as a result of projected climate change (IPCC 2007a). Such changes will affect the tourism industry through increased infrastructure damage, additional emergency preparedness requirements, higher

operating expenses (e.g., insurance, backup water and power systems, and evacuations), and business interruptions.

Indirect environmental change impacts

Because environmental conditions are such a critical resource for tourism, a wide-range of climate-induced environmental changes will have profound effects on tourism at the local and regional destination level. Changes in water availability, biodiversity loss, reduced landscape aesthetic, altered agricultural production (e.g., food and wine tourism), increased natural hazards, coastal erosion and inundation, damage to infrastructure and the increasing incidence of vector-borne diseases will all impact tourism to varying degrees. In contrast to the varied impacts of a changed climate on tourism, the indirect effects of climate induced environmental change are likely to be largely negative. Importantly, there remain major regional gaps in our knowledge e.g. of how climate change will affect the natural and cultural resources critical for tourism in Africa (c.f. Simpson and Hall 2008), the Caribbean, South America, the Middle East and large parts of East Asia.

Impacts of mitigation policies on tourist mobility

National or international mitigation policies – that is policies that seek to reduce GHG emissions – may have an impact on tourist flows (Simpson et al. 2008a; Gössling et al. 2008b). They are likely to lead to an increase in transport costs and may foster environmental attitudes that lead tourists to change their travel patterns (e.g., shift transport mode or destination choices). There has been substantial recent media coverage on this topic, specifically as it relates to air travel. Long-haul destinations can be particularly affected and officials in Southeast Asia, Australia-New Zealand, Africa and the Caribbean have expressed concern that mitigation policies could adversely impact their national tourism economy.

Indirect societal change impacts

Climate change is thought to pose a risk to future economic growth and to the political stability of some nations. Any such reduction of global GDP due to climate change would reduce the discretionary wealth available to consumers for tourism and have negative implications for anticipated future growth in tourism. Climate change is considered a national and international

security risk that will steadily intensify, particularly under greater warming scenarios. Climate change associated security risks have been identified in a number of regions where tourism is highly important to local-national economies (e.g. Barnett and Adger 2007, Stern 2006, German Advisory Council 2007, c.f. Simpson and Hall 2008). International tourists are averse to political instability and social unrest, and negative tourism-demand repercussions for climate change security hotspots, many of which are believed to be in developing nations, are evident (Hall et al. 2004).

Tourism Vulnerability Hotspots

The integrated effects of climate change willhave far-reaching consequences for tourism businesses and destinations andthese impacts will vary substantially by market segment and geographic region.The implications of climate change for any tourism business or destination willalso partially depend on the impacts on its competitors. A negative impact inone part of the tourism system may constitute an opportunity elsewhere. Due to the very limited information available on the potential impacts of climate change in some tourism regions, this assessment must be considered with caution. Until systematic regional level assessments are conducted a definitive statement on the net economic or social impacts in the tourism sector will not be possible (UNWTO-UNEP-WMO 2008).

Contribution of Tourism to Climate Change

Anthropogenic climate change is caused by greenhouse gasses emitted into the atmosphere, primarily through the burning of fossil fuels. Carbon dioxide (CO2) is the most important greenhouse gas, accounting for an estimated 60% of the warming caused by emissions of greenhouse gas emissions. According to UNWTO-UNEP-WMO (2008), emissions from tourism, including transports, accommodation and activities (excluding the energy used for constructions and facilities for example) account for about 5% of global CO2 emissions. However, other greenhouse gases also make significant contributions to global warming. In the tourism sector, this is particularly relevant for emissions from aviation. In 2005, tourism's contribution to global warming was estimated to contribute between 5% and 14% to the overall warming caused by human emissions of greenhouse gasses.

Of the 5% of the global total of CO2 emissions contributed by tourism, transport generates around 75%, and in terms of the radiativeforcing specific to transport, the share is significantly larger ranging from 82% to 90%, with air transport alone accounting for 54% to 75% of the total (UNWTO-UNEP-WMO 2008). There is tremendous variation in emissions across tourism sectors and within individual trips. Trips by coach and rail account for 34% of all trips, but for only 13% of all CO2 emissions (excluding emissions from accommodation/activities). Conversely, long haul travel accounts for only 2.7% of all tourist trips, but contributes 17% to global tourist emissions. As for other trips, emissions can be close to zero (for instance a holiday by bicycle and tent) or amount to more than 10 t of CO2 (South Pole crossing).By 2035, tourism's contribution to climate change may have grown considerably. A recent scenario developed by the expert team of the technical report in the UNWTOUNEP-WMO (2008) publication considers different emission pathways, including a 'business as usual' projection based on anticipated growth rates in tourist arrivals, as well as distances travelled by various means of transport. These projections indicate that in terms of the number of trips made, global tourism will grow by 179%, while guest nights will grow by 156%. Passenger kilometers travelled will rise by 222%, while CO2 emissions will increase at somewhat lower levels (152%) due to efficiency improvements. The share of aviation-related emissions will grow from 40% in 2005 to 52% by 2035. Tourism's contribution to global warming including all greenhouse gasses will be even larger, with an expected increase in radiative forcing of up to 188%, most of this once again caused by aviation. The development of emissions from tourism and their contribution to global warming is thus in stark contrast to the international community's climate change mitigation goals for the coming decades. For example, international delegates at the Vienna Climate Change Talks (August 2007) recognized the finding by the IPCC that global emissions of GHG needed to peak in the next 10 to 15 years and then be reduced to below half of levels in 2000 by mid-century.

Conclusion

The integrated effects of climate change willhave far-reaching consequences for tourism businesses and destinations andthese impacts will vary substantially by market segment and geographic region.The implications of climate change for any tourism business or destination willalso partially depend on the impacts on its competitors. A negative impact inone part of the

tourism system may constitute an opportunity elsewhere. Due to the very limited information available on the potential impacts of climate change in some tourism regions, this assessment must be considered with caution. The environmental and economic risks of the magnitude of climate change projected for the 21st century are considerable and have featured prominently in recent international policy debates. The IPCC concluded with very high confidence that climate change would impede the ability of many nations to achieve sustainable development by mid-century. The Stern Review on the Economics of Climate Change found that the costs of taking action to reduce GHG emissions now, are much smaller than the costs of economic and social disruption from unmitigated climate change. With its close connections to the environment and climate itself, tourism is considered to be a highly climate-sensitive economic sector similar to agriculture, insurance, energy, and transportation. The regional manifestations of climate change will be highly relevant for tourism destinations and tourists alike, requiring adaptation by all major tourism stakeholders. Indeed, climate change is not a remote future event for tourism, as the varied impacts of a changing climate are becoming evident at destinations around the world and climate change is already influencing decision-making in the tourism sector. At the same time, the tourism sector is a non-negligible contributor to climate change through GHG emissions derived especially from the transport and accommodation of tourists. Tourism must seek to significantly reduce its GHG emissions in accordance with the international community, which at the "Vienna Climate Change Talks 2007" recognized that global emissions of GHG need to peak in the next 10–15 years and then be reduced to very low levels, well below half of levels in 2000 by mid-century. The tourism sector can not address the challenge of climate change in isolation, but must do so within the context of the broader international sustainable development agenda. The critical challenge before the global tourism sector is to develop a coherent policy strategy that decouples the projectedmassive growth in tourism in the decades ahead from increased energy use and GHG emissions, so as to allow tourism growth to simultaneously contribute to poverty alleviation and play a major role in achieving the United Nations Millennium Development Goals (MDG).

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